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ABSTRACT

This curriculum guide is designed to offer guidelines along with supporting resources and teaching ideas from which the local postsecondary instructor can extract an auto body curriculum that meets local needs. Following an outline of the philosophy and goals underlying state and local vocational education programs in Georgia, the purpose and objectives of the guide are explained. Covered next are the nature and scope of the field of auto body repair, employability skills that are necessary in the field, student exit points, and tasks performed by auto body repairers. A sample curriculum structure and a course outline are provided. The bulk of the guide consists of a series of unit guides, each of which contains a task statement, a performance objective, instructional activities, suggested instructional materials, and evaluation criteria. The next two sections consist of listings of references and resources and student record forms. Suggestions are set forth for working with special needs students. Also supplied are facility layouts for a learning laboratory and a learning resource center. (MN)

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AUTO BODY

Post Secondary

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CURRICULUM GUIDE

Georgia Department of Education

AUTO BODY

Developed Under Contractual Agreement with

Division of Program Development
Office of Vocational Education
Georgia Department of Education
Atlanta, Georgia 30334
Charles McDaniel, State Superintendent of Schools
1981

AUTO BODY

Developed by

The University of Georgia

Under the Direction of

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POLICIES AND PROCEDURES FOR THE CENTER

PURPOSE OF THE CENTER

The Vocational Education Materials Center functions within the Division of Vocational Education, University of Georgia. This Center operates under grants from the U.S. Office of Education, and the Georgia State Department of Education with the support of the College of Education. The Center is comprehensive in its commitment and approach to the development and dissemination of materials in the broad field of Vocational Education.

The purpose of the Center is to increase the capability of Georgia's delivery system for Vocational Education. Specifically, the Center is committed to:

1. Develop materials to assist in the implementation of proposed curricula and to enhance the teaching of Vocational Education.
2. Conduct and report curriculum research related to Vocational Education.
3. Provide a production and dissemination center for Vocational Education materials.
4. Provide direct experiences in curriculum development and diffusion for advanced graduate students.
5. Enable faculty members to participate in the development and implementation of a variety of curriculum materials.

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TABLE OF CONTENTS

SECTION I: PHILOSOPHY AND GOALS (Pink) I-1

State I-3

Local I-5

SECTION II: PURPOSE AND OBJECTIVE (Blue) II-1

Purpose of Guide II-3

Program Objective II-5

SECTION III: D.O.T. DESCRIPTION, EXIT POINTS, TASK (Green) III-1

Description of Occupational Field III-3

Employability Skills III-13

Student Exit Points III-14

Task Listing/D.O.T. Code Cross Reference III-16

SECTION IV: CURRICULUM STRUCTURE AND COURSE OUTLINE (Yellow) IV-1

Curriculum Structure IV-3

Course Outline IV-10

SECTION V: UNIT GUIDES (Gold) V-1

SECTION VI: REFERENCES, RESOURCES (Pink) VI-1

Instructional Resource Matrix VI-3

Additional Instructional Resources VI-16

SECTION VII: STUDENT RECORDS (Blue) VII-1

Individual Progress Reports VII-4

Group Progress Report VII-5

Instructions for Competency Checklist and Certificate of Competency VII-6

Competency Checklist VII-8

Certificate of Competency VII-12

SECTION VIII: SPECIAL NEEDS STUDENTS (Green)............ VIII-1

Working with the Special Needs Student................. VIII-3

SECTION IX: FACILITY LAYOUT (Yellow).................... IX-1

Learning Resource Center............................... IX-3

Laboratory.. IX-7

SECTION X: DEFINITION OF TERMS (Gold)................... X-1

9

SECTION I

PHILOSOPHY & GOALS

VOCATIONAL EDUCATION IN GEORGIA

A. PHILOSOPHY

The Georgia Board of Education perceives vocational education as a vital component in the education of the young and adult citizens of this State. Appropriate programs of vocational education and ancillary services should be made readily available to individuals in middle schools, high schools, postsecondary area vocational-technical schools, vocational divisions of junior colleges, vocational centers, the Quick Start program and other adult programs designed to train or retrain workers for useful and satisfying employment.

Special services and assistance must be provided to those who need it in order to participate or benefit from vocational education. This includes women, minorities, the displaced homemaker and other displaced workers, those with limited English-speaking ability, the disadvantaged and the handicapped.

Since men and women spend the greater part of their lives at some form of work, the State should provide opportunities for all its citizens to develop the knowledge, skills and attitudes necessary for them to secure personally satisfying and socially useful employment.

B. PURPOSE

The purpose of vocational education shall be to improve the economic well-being of Georgia citizens by preparing individuals, through organized learning experiences, to select, obtain and advance in recognized occupations.

POSTSECONDARY VOCATIONAL EDUCATION

A. PURPOSE

The purpose of postsecondary vocational-technical education in Georgia is to improve the economic well-being of adult citizens by providing access to high quality vocational-technical training for skilled and semi-skilled occupations, for improvement of existing skills or for retraining in a new occupation.

B. OBJECTIVES

1. To provide vocational-technical education programs and ancillary services commensurate with the needs and interests of students and available job opportunities.
2. To provide vocational-technical education programs which are current with the state-of-the-art, competency-based, and offer multiple exit points to accomodate the students' occupational objectives.
3. To provide vocational-technical education programs which are articulated with available high school counterparts, to facilitate an easy transition from secondary to postsecondary levels without loss of credit.
4. To provide vocational-technical education programs such that 75% of those individuals who leave or complete a program of occupational preparation will find employment in the field, or a related field, for which trained.
5. To provide those guidance, counseling, financial aid, evaluative, job placement, remedial and other supportive programs and services needed by students to enroll, complete a program and become, or remain, employable in a skilled or semi-skilled occupation.
6. To provide needed assistance to special populations to include women, minorities, limited English-speaking, the displaced homemaker and other displaced workers, the disadvantaged and the handicapped.
7. To provide vocational-technical education programs for full-time and part-time students on campus during the day as well as the evening hours, and to provide appropriate programs for full-time and part-time students off campus in businesses and industries, comprehensive high schools and other locations within the respective schools' service areas.
8. To serve as a center for the delivery of postsecondary and adult vocational-technical education programs and services for the community and assigned service area.

STATEMENT OF LOCAL SYSTEM PHILOSOPHY, PURPOSE AND GOALS FOR VOCATIONAL EDUCATION

SECTION II

PURPOSE & OBJECTIVES

PURPOSE OF GUIDE

The purpose is defined in terms of the functional needs of each of the identified classes of users in the secondary and post secondary systems.

(a) Vocational teachers.

1. Provide a guide for organizing their program of instruction,
2. Assist in establishing program objectives,
3. Serve as a curriculum materials resource guide,
4. Improve communications with employers and advisory committees,
5. Facilitate competency based instruction,
6. Facilitate either group or self-paced instruction,
7. Include content by quarter and semester,
8. Cross-reference with existing state developed instructional materials (PLACE packages and post secondary I.I.).

(b) Vocational supervisors and administrators.

1. Assist in defining the scope and content of their programs,
2. Provide a means to improve curriculum management functions,
3. Serve as a guide for admissions and job placement functions,
4. Improve communications with employers and advisory committees.

(c) Counseling and guidance staff.

1. Provide a data base for counseling and guidance personnel,
2. Identify student exit points (Career Options),
3. Serve as guide for admissions and job placement,
4. Correlate with the new State Board of Education graduation requirements,
5. Provide specific content sequencing by quarter and semester for student scheduling,
6. Provide (a) curriculum options for the disadvantaged handicapped student, (b) curriculum modifications for SPECIAL NEEDS students, (c) typical admission requirements for regular and SPECIAL NEEDS students.

(d) Local Curriculum Coordination Committees.

1. Serve as a guide in working out articulation arrangements,
2. Improve definitions of the relationship between secondary clusters and post secondary specialized programs.

This guide will serve as an ideal communication device between school personnel and the craft advisory committee. By personally reviewing the guide with the local craft advisory committee the teacher will be able to maintain the accuracy of the guide in terms of the local job market and will also be able to inform representatives of local industry regarding the content of the program itself.

AUTO BODY REPAIR PROGRAM OBJECTIVE

Given appropriate instruction, as suggested by this guide, a student completing the program should demonstrate entry level skills in Auto Body Repair in the areas of knowledge, theoretical structure, tool usage, diagnostic ability, related supportive skills and occupational survival skills.

As the student progresses through the program, sufficient competencies will be acquired to enable the student to enter the occupational field at the following curriculum exit points.

Steam Cleaner	(D.O.T. Code 915.687-026)
Body Masker	(D.O.T. Code 749.687-018)
Auto Body Helper	(D.O.T. Code 807.687-0I0)
Arc Welding Apprentice	(D.O.T. Code 810.384-010)
Gas Welder Apprentice	(D.O.T. Code 811.684-010)
Glass Installer	(D.O.T. Code 865.684-010)
Auto Shop Estimator	(D.O.T. Code 807.267-010)
Auto Painter Helper	(D.O.T. Code 845.684-014)
Auto Painter Apprentice	(D.O.T. Code 845.381-010)
Automotive Painter	(D.O.T. Code 845.381-014)
Auto Body Customizer	(D.O.T. Code 807.361-010)
Auto Body Repairer	(D.O.T. Code 807.381-010)

SECTION III

D. O. T. DESCRIPTION, EXIT POINTS, TASKS

DESCRIPTION OF OCCUPATIONAL FIELD

The primary purpose of this section is to provide a general orientation to the occupational field. This orientation may be used by counseling and guidance staff in helping students to select subject areas. It may also be used by instructors for new students just entering the program area. The description delimits the scope of the occupational field in terms of the range of activities involved in a series of occupations. It contains information about career potential within the occupational field, including job market conditions and trends.

The description identifies prerequisite skills and knowledge for those students interested in entering the occupational field. In addition, the Description of Occupational Exit Points are provided to aide the instructor in identifying possible jobs for early leavers. A listing of employability skills is also included in this section.

Auto Body Repair

Nature of the Work

Every day thousands of motor vehicles are damaged in traffic accidents. Although some are wrecked, most can be made to look and drive like new. Automobile body repairers straighten bent frames, remove dents and replace crumpled parts that are beyond repair. Usually, they can fix all types of vehicles, but most repairers work mainly on cars and small trucks. A few specialize in working on large trucks, buses or tractor trailers.

When a damaged vehicle is brought into the shop, body repairers generally receive instructions from their supervisors who have determined which parts are to be restored or replaced and how much time the job should take.

Automobile body repairers use special machines to restore damaged frames and body sections to their original shape and location. They chain or clamp the frames and sections to alignment machines that usually use hydraulic pressure to align the damaged metal.

Body repairers remove badly damaged sections of body panels with a pneumatic metalcutting gun or acetylene torch, and weld in new sections to replace them. Sometimes, dented sections can be repaired rather than replaced; repairers push dents out with a hydraulic jack or hand prying bar or knock them out with a handtool or pneumatic hammer. Small dents and creases can be smoothed out by holding a small anvil against one side of the damaged area while hammering the opposite side. Very small pits and dimples are removed with pick hammers and punches.

Body repairers use plastic or solder to fill small dents which cannot be worked out of the metal. Then they file or grind the hardened filler to the original shape and sand it before painting. In many shops, automobile painters do the painting. (These workers are discussed elsewhere in the Handbook.). In smaller shops workers often do both body repairing and painting.

Body repair work has variety--each damaged vehicle presents a different problem. Therefore, in addition to having a broad knowledge of automobile construction and repair techniques, repairers must develop appropriate methods for each job. Most of these skilled people find their work challenging and take pride in being able to restore automobiles.

Body repairers usually work by themselves with only general directions from supervisors. In some shops, they may be assisted by helpers or apprentices. In large shops, body repairers may specialize in one type of repair, such as straightening bent frames or repairing doors or fenders.

Working Conditions

Automobile body repairers work indoors in body shops. Automobile body shops are noisy because of the banging of hammers against metal and the whir of power tools. Most shops are well ventilated, but often they are dusty and have the odor or paint. Body repairers often work in awkward or cramped positions and much of their work is strenuous and dirty. Hazards include cuts from sharp metal edges, burns from torches and heated metal and injuries from power tools.

Places of Employment

About 185,000 persons worked as automobile body repairers in 1978. Most worked for shops that specialized in body repairs and painting and for automobile and truck dealers. Other employers included organizations that maintain their own motor vehicles, such as trucking companies and buslines. Motor vehicle manufacturers employed a small number of these workers.

Automobile body repairers work in every section of the country, with jobs distributed in about the same way as the population.

Training, Other Qualifications, and Advancement

Most automobile body repairers learn the trade on the job. They usually start as helpers and pick up skills from experienced workers. Helpers begin by assisting body repairers in tasks such as removing damaged parts and installing repaired parts. They gradually learn to remove small dents and make other minor repairs and progress to more difficult tasks such as straightening frames. Generally 3 to 4 years of on-the-job training are needed to become skilled in all aspects of body repair. Most training authorities recommend a 3- or 4-year formal apprenticeship program as the best way to learn the trade, but relatively few of these programs are available. Apprenticeship includes both on-the-job and classroom instruction. Apprentices spend most of their time learning on the job, but they also are expected to attend classes in related subjects such as mathematics, job safety procedures and business management.

Persons who want to learn this trade should be in good physical condition and know how to use tools. Courses in automobile body repair offered by high schools and vocational schools provide helpful experience, as do courses in automobile mechanics. Although completion of high school generally is not a requirement, many employers believe graduation indicates that the person has at least some of the qualities of a good worker, such as the ability to see a task through to its completion. The latter is especially important to employers who spend a good deal of time and money on training.

Automobile body repairers must buy their own tools, but employers sometimes furnish power tools. Trainees generally accumulate tools as they gain experience. Many workers invest hundreds of dollars in tools.

An experienced automobile body repairer with supervisory ability may advance to shop supervisor. Many workers open their own body repair shops. In fact, about 1 of every automobile body repairer is self-employed.

Employment Outlook

Employment of automobile body repairers is expected to increase faster than the average for all occupations through the 1980's.

Employment is expected to increase as a result of the rising number of motor vehicles damaged in traffic. Accidents are expected to increase as the number of motor vehicles grows, even though improved highways, driver training courses, lower speed limits and improved bumpers and safety features on new vehicles may slow the rate of incresse.

In addition to new jobs arising from increased demand for these workers, many openings are expected each year as experienced repairers retire or die. Also openings will occur as some workers transfer to other occupations.

Most persons who enter the occupation may expect steady work since the automobile repair business is not very sensitive to changes in economic conditions.

Sources of Additional Information

More details about work opportunities may be obtained from local employers, such as automobile body repair shops and automobile dealers; or the local office of the State employment service. The State employment service also may be a source of information about apprenticeship and other programs that provide training opportunities.

For general information about the work of automobile body repair workers and apprenticeship training, write to: Automotive Service Industry Association, 444 North Michigan Ave., Chicago, IL, 60611. Automotive Service Councils, Inc., 188 Industrial Drive, Suite 112, Elmhurst, IL, 60126. National Automobile Dealers Association, 8400 Westpark Dr., McLean, VA, 22102.

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*Occupational Outlook Handbook, 1980 ed.

DESCRIPTION OF OCCUPATIONAL EXIT POINTS

915.687-026 STEAM CLEANER

Cleans engines, bodies, and chassis of automotive vehicles, using high pressure steam hose and detergent solution. Starts boiler to generate steam. Sprays steam and detergent solution over vehicle chassis, engine, or parts, to remove dirt and grease. Lowers engine or chassis parts into tank of detergent solution, by hand or by use of hoist, to clean inaccessible surfaces. Scrapes off adherent grime and grease, using wire brush or putty knife. May spray vehicle body with steam and caustic compound to remove paint.

749.687-018 BODY MASKER

Covers specified areas of metal or wooden parts to be spray-painted, using masking tape, cardboard or paper. Marks area to be masked on parts or articles, such as aircraft and automobile assemblies, lamp bases, or motorcycle fenders, using rule or template. Cuts or tears paper or cardboard to specified size. Secures masking in place with gummed tape to protect parts while surrounding areas are spray-painted. May smooth unmasked surface using sandpaper. May dip or coat article with liquid wax instead of applying masking. May tape precut masks or stencils to article.

807.687-010 AUTO BODY HELPER

Assists auto body repairer in job situations. Works under direct supervision of Auto Body Repairer.

810.384-010 ARC WELDING APPRENTICE

Performs duties which aid the arc welder. May weld together metal components. Helps connect cables from welding unit to obtain amperage, voltage, slope, and pulse. Helps start power supply to produce electric current. Strikes (forms) arc which generates heat to melt and deposit metal from electrode to workpiece and join edges of workpiece. Manually guides electrode or gun along weld line, maintaining length of arc and speed of movement to form specified depth of fusion and bead, as judged from color of metal, sound of weld, and size of molten puddle. Welds in flat, horizontal, verticle, or overhead positions. Examines weld for bead size and other specifications. May manually apply filler rod to supply weld metal. May clean or degrease weld joint or workpiece, using wire brush, portable grinder, or chemical bath. May repair broken or cracked parts and fill holes. May prepare broken parts for welding by grooving or scarfing surfaces. May chip off excess weld, slag, spatter, using hand scraper or power chipper. May preheat workpiece, using hand torch or heating furnace. May position and clamp workpieces together or assemble them in jig or fixture. May tack assemblies together.

811.684-010 GAS WELDER APPRENTICE

Performs duties which aid the gas welder. May help in the following jobs. Welds metal parts, using gas welding equipment as specified by layout, welding diagram, or work order. Positions parts in jigs or fixtures on bench or floor, or clamps parts together along layout marks. Selects torch, torch tip, filler rod and flux, according to welding chart specifications or type and thickness of metal. Connects regulator valves and hoses to oxygen and fuel gas cylinders, and welding torch. Turns regulator valves to activate flow of gases, lights torch and adjusts gas mixture and pressure, to obtain desired flame, based on knowledge of gas-welding techniques. Holds torch at proper angle to metal and guides along weld joint, applying filler rod to molten area to form weld. Examines weld for bead size and other specificaions. Repairs broken or cracked metal objects, fills holes, and builds up metal parts. May apply flux to workpiece instead of filler rod. May preheat workpiece in furnace or with torch. May layout, position and tack weld workpieces. May weld along vertical or overhead weld lines. May scarf or groove weld prior to applying filler metal, using gas welding equipment. May chip or grind off excess weld, slag, or spatter. May clean or degrease parts, using wire brush, portable grinder or chemical bath. May cut metal plates or structural shapes using gas torch.

865.684-010 GLASS INSTALLER

Replaces broken or pitted windshields and window glass in motor vehicles. Removes broken glass by unscrewing frame, using handtools. Cuts flat safety glass according to specified pattern, using glasscutter. Smooths cut edge of glass by holding against abrasive belt. Applies moisture proofing compound along cut edges and installs glass in vehicle. Weatherproofs window or windshield and prevents it from rattling by installing rubber channeling strips around sides of glass. Installs precut replacement glass to replace curved windows. May replace or adjust parts in window-raising mechanism

807.267-010 AUTO SHOP ESTIMATOR

Estimates cost of repairing damaged automobile and truck bodies, on basis of visual inspection of vehicle and familiarity with standard parts, costs, and labor rates: Examines damaged vehicle for dents, scratches, broken glass, and other areas requiring repair, replacement, or repainting. Sights along fenders to detect frame damage, or positions vehicle in frame-alining rig that indicates location and extent of misalinement. Examines interior for evidence of fire or water damage to upholstery and appointments. Determines feasibility of repair or replacement of parts, such as bumpers, fenders, and doors, according to familiarity with relative costs and extent of damage. Computes cost of replacement parts and labor to restore vehicle to condition specified by customer, using standard labor and parts cost manuals. Enters itemized estimate on job order card or estimate form and explains estimate to customer. May eliminate cost of mechanical, electrical, or other repairs where shop performs both body work and mechanical servicing of vehicles. May estimate cost of repainting, converting vehicles to special purposes, or customizing undamaged vehicles, depending on specialty of shop.

845.684-014 AUTO PAINTER HELPER

Assists Automotive Painter by preparing surfaces of automotive vehicles, such as automobiles, buses, and trucks, for repainting and polishes repainted vehicles. Sands rough spots on automotive vehicle. Sprays scratched areas with filler solution, using spray gun. Applies paper and masking tape to protect unpainted surfaces, such as bumpers, windows, and chrome trim. Removes gloss from intermediate coats of paint, using wet sandpaper, to insure adherence of next coat. Polishes final coat of paint, using polishing compound and cloth. Paints surfaces not readily accessible, such as wheels and underside of fenders, using brush and spray gun. May remove and replace chrome moldings and trim. May brush or spray undercoating material on replaced parts.

845.381-014 AUTO PAINTER APPRENTICE

Assists Automotive Painter by preparing surfaces of automotive vehicles, such as automobiles, buses, and trucks, for repainting and polishes repainted vehicles. Sands rough spots on automotive vehicle. Sprays scratched areas with filler solution, using spray gun. Applies paper and masking tape to protect unpainted surfaces, such as bumpers, windows, and chrome trim. Removes gloss from intermediate coats of paint, using wet sandpaper, to insure adherence of next coat. Polishes final coat of paint, using polishing compound and cloth. Paints surfaces not readily accessible, such as wheels and underside of fenders, using brush and spray gun. May remove and replace chrome molding and trim. May brush or spray undercoating material on replaced parts.

845.381-014 AUTOMOTIVE PAINTER

Paints surfaces of transportation equipment such as automobiles, buses, trucks, and airplanes, according to specifications, using brushes and spray gun. Removes old paint from vehicle using liquid paint remover and scraper. Smooths surfaces with sandpaper and steel wool. Roughens aluminum surfaces with acid solution and steel wool to insure that paint adheres to surface. Masks and covers portions of surfaces not to be painted. Positions stencils on vehicle surface, according to blueprints, using ruler and pencil. Paints vehicle or specified portion of vehicle, using spray gun or brush. Paints insignia and identifying letters and numerals on aircraft surfaces. May remove accessories from motor vehicles, such as chrome, mirrors, and windshield wipers. May paint designs with brush. May touch up paint, or paint identifying stripes or other symbols on aircraft parts.

807.361-010 AUTO BODY CUSTOMIZER

Installs custom equipment to alter appearance of automotive vehicle according to customer specifications, using handtools and power tools. Reads specifications or confers with customer to determine modifications desired. Cuts opening in vehicle body for installation of customized windows, using templates, and power shears or chisel. Measures and marks vinyl material and cuts material to size for roof installation, using rule, straightedge, and hand shears. Cuts and bends metal trim to specified size and configuration, using power shears and chrome-bending die. Fits and secures windows, vinyl roof, and metal trim, using caulking gun, adhesive brush, and mallet.

807.381-010 AUTO BODY REPAIRER

Repairs damaged bodies and body parts of automotive vehicles, such as automobiles, buses, and light trucks according to repair manuals, using handtools and power tools. Examines damaged vehicles and estimates cost of repairs. Removes upholstery, accessories, electrical and hydraulic window-and-seat-operating equipment, and trims to gain access to vehicle body and fenders. Positions dolly block against surface of dented area and beats opposite surface to remove dents, using hammer. Fills depressions with solder or other plastic material. Removes damaged fenders, panels, and grills, using wrenches and cutting torch, and bolts or welds replacement parts in position, using wrenches or welding equipment. Straightens bent frames, using hydraulic jack and pulling device. Files, grinds, and sands repaired surface, using power tools and handtools. Refinishes repaired surface, using paint spray gun and sander. Aims headlights, alines wheels, and bleeds hydraulic brake system.

EMPLOYABILITY SKILLS

In addition to the aptitudes, abilities, interests, physical requirements and job skills listed in the preceding Description of Occupation, employability skills exert a great deal of influence on a person's ability to get and keep a job. Surveys indicate that more people lose their jobs because of poor attitudes toward their job than for lack of job skills. For this reason it is important that information concerning the following employability skills be provided as an ongoing part of the program.

1. Getting a job
   - a. Filling out job applications
   - b. Developing a resume
   - c. Preparing for a job interview
2. Keeping a job
   - a. Be on time and regular in attendance
   - b. Maintain a fair share of the work-load
   - c. Work without supervision
   - d. Meet production schedules
   - e. Properly care for and use equipment
   - f. Dress appropriately for the job
   - g. Maintain good personal hygiene
   - h. Develop and maintain good communication with supervisors and co-workers

AUTO BODY EXIT POINTS

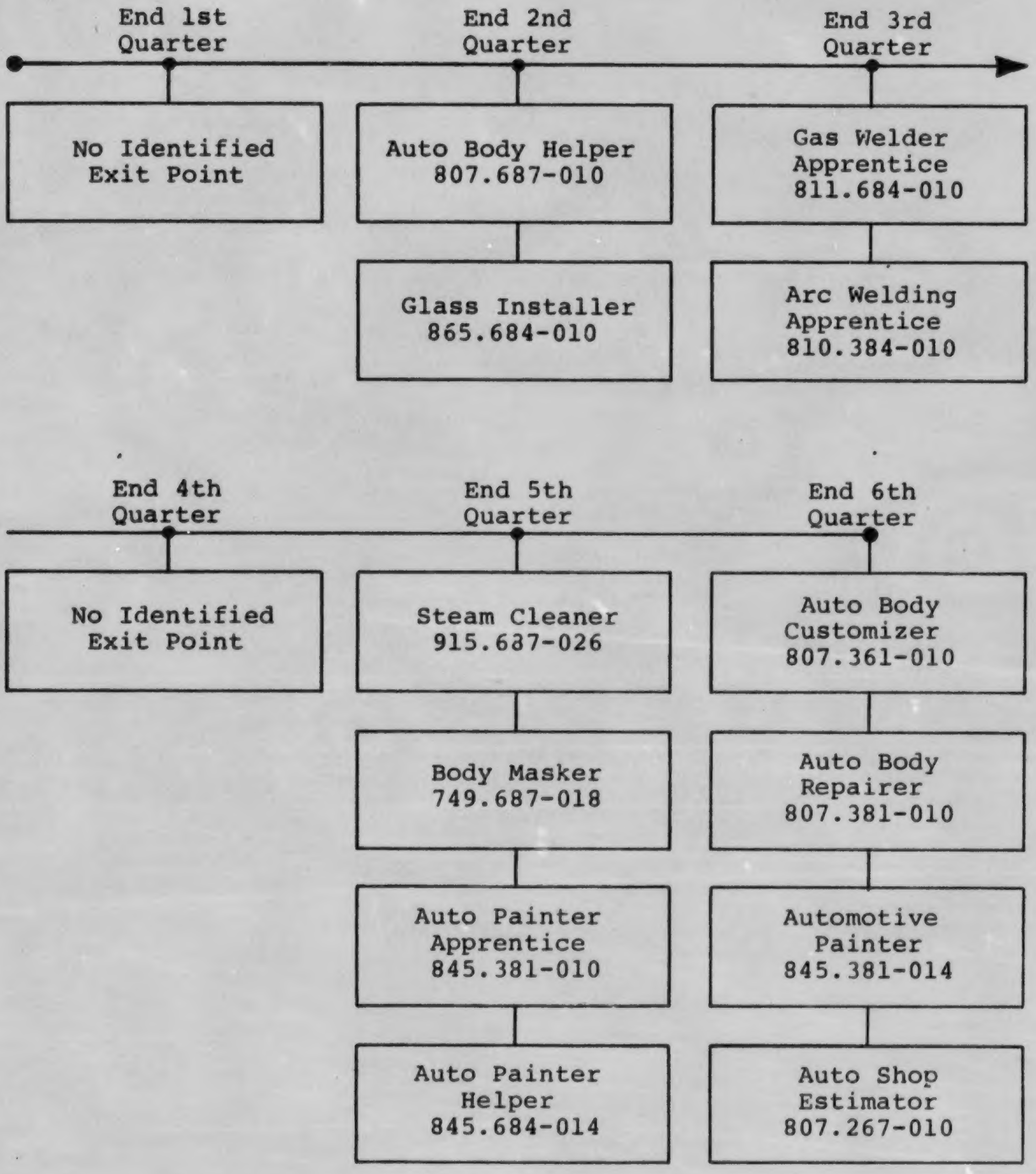
The diagram on the following page is based on the Suggested Course Outline Structure. It geographically illustrates the points in the Auto Body program where the student should have acquired the competencies necessary for entry level employment into the job classifications indicated. In many cases, by the time a student reaches an exit point he/she may have acquired several competencies in addition to those required for the specific job classification.

The course outline is structured to prepare students to become Auto Body Helpers, Apprentices, Estimators, Painters, Customizers, Maskers, Glass Installers and Auto Body Repairers. In addition, the student will gain skills in electric and gas welding and operation of steam cleaning equipment. Every student, upon leaving a vocational program, should have entry level skills in some related occupation.

The Task Listing by D.O.T. Code indicates the entry level skills (tasks) required for the student to be considered employable in a specific occupation. If the local program is individualized it should be relatively easy to move a potential program leaver (drop out) into those skills (tasks) which would qualify the student for one of the listed occupations.

EXIT POINTS

Auto Body Repair


End 1st Quarter
No Identified Exit Point
End 2nd Quarter
Auto Body Helper 807.687-010
Glass Installer 865.684-010
End 3rd Quarter
Gas Welder Apprentice 811.684-010
Arc Welding Apprentice 810.384-010
End 4th Quarter
No Identified Exit Point
End 5th Quarter
Steam Cleaner 915.687-026
Body Masker 749.687-018
Auto Painter Apprentice 845.381-010
Auto Painter Helper 845.684-014
End 6th Quarter
Auto Body Customizer 807.361-010
Auto Body Repairer 807.381-010
Automotive Painter 845.381-014
Auto Shop Estimator 807.267-010

TASK LISTING BY D.O.T. CODE

The tasks are listed in this section in a matrix format that cross references them with the applicable D.O.T. codes for the exit point occupational titles. Each task is identified with one or more of the exit point occupational titles. This information may be used to make a specific determination as to when a student has developed the necessary skills to qualify for an exit point and is particularly useful in preparing early leavers to meet the requirements for a specific occupational title.

TASK LISTING BY DOT CODE

OCCUPATIONAL AREA

Auto Body (Post Secondary)

	POSSIBLE EXIT POINTS DOT DESCRIPTION	Steam Cleaner	Body Masker	Auto Body Helper	Arc Welding Apprentice	Gas Welder Apprentice	Glass Installer	Auto Shop Estimator	Auto Painter Helper	Auto Painter Apprentice	Automotive Painter	Auto Body Customizer	Auto Body Repairer
	DOT NO.	915.687-026	749.687-018	807.687-010	810.384-010	811.684-010	865.684-010	807.267-010	845.684-014	845.381-010	845.381-014	807.361-010	807.381-010
TASK NO.	TASK NAME												
	BODY AND FRAME REPAIR												
	DUTY I - Body and Frame Component Replacement												
BF-01	Demonstrating an understanding of auto body structures			X			X	X				X	X
BF-02	Naming the parts of a vehicle and describing how they are constructed and formed together			X			X	X				X	X
BF-03	Removing, replacing and aligning doors			X			X	X				X	X
BF-04	Removing and replacing grills and gravel deflectors			X				X				X	X
BF-05	Removing and replacing a door lock assembly			X				X				X	X
BF-06	Removing and replacing moldings			X				X				X	X
BF-07	Removing and replacing weatherstrip			X				X				X	X

TASK LISTING BY DOT CODE

OCCUPATIONAL AREA

Auto Body (Post Secondary)

POSSIBLE EXIT POINTS

TASK NO.	TASK NAME	Steam Cleaner	Body Masker	Auto Body Helper	Arc Welding Apprentice	Gas Welder Apprentice	Glass Installer	Auto Shop Estimator	Auto Painter Helper	Auto Painter Apprentice	Automotive Painter	Auto Body Customizer	Auto Body Repairer
DOT NO.		915.687-026	749.687-018	807.687-010	810.384-010	811.684-010	865.684-010	807.267-010	845.684-014	845.381-010	845.381-014	807.361-010	807.381-010
BF-08	Removing and replacing interior trim			X				X				X	X
BF-09	Removing and replacing door trim panel			X				X				X	X
BF-10	Removing, replacing and adjusting headlamps			X				X				X	X
BF-11	Removing and replacing a headliner			X				X				X	X
BF-12	Removing and replacing standard and energy-absorbing front bumpers			X				X				X	X
BF-13	Removing, replacing and aligning hood			X				X				X	X
BF-14	Removing and replacing front fenders and wheel housing units			X				X				X	X
BF-15	Removing and replacing fuel tanks			X	X	X						X	X
BF-16	Removing and replacing quarter panels and extension			X								X	X

TASK LISTING BY DOT CODE

OCCUPATIONAL AREA

Auto Body (Post Secondary)

POSSIBLE EXIT POINTS

TASK NO.	TASK NAME	Steam Cleaner	Body Masker	Auto Body Helper	Arc Welding Apprentice	Gas Welder Apprentice	Glass Installer	Auto Shop Estimator	Auto Painter Helper	Auto Painter Apprentice	Automotive Painter	Auto Body Customizer	Auto Body Repairer
	DOT DESCRIPTION / DOT NO.	915.687-026	749.687-018	807.687-010	810.384-010	811.684-010	865.684-010	807.267-010	845.684-014	845.381-010	845.381-014	807.361-010	807.381-010
BF-17	Removing and replacing bolt-in radiator supports			X								X	X
BF-18	Removing and replacing door skin			X								X	X
BF-19	Removing a complete front end assembly			X								X	X
BF-20	Removing and replacing windows with adhesive sealant			X			X					X	X
BF-21	Removing and replacing a windshield with rubber channels			X			X					X	X
BF-22	Removing and replacing a door glass regulator			X			X					X	X
BF-23	Removing and installing glass						X					X	X
BF-24	Removing and replacing power window motors and locks			X			X					X	X

TASK LISTING BY DOT CODE

OCCUPATIONAL AREA

Auto Body (Post Secondary)

POSSIBLE EXIT POINTS

TASK NO.	TASK NAME	Steam Cleaner 915.687-026	Body Masker 749.687-018	Auto Body Helper 807.687-010	Arc Welding Apprentice 810.384-010	Gas Welder Apprentice 811.684-010	Glass Installer 865.684-010	Auto Shop Estimator 807.267-010	Auto Painter Helper 845.684-014	Auto Painter Apprentice 845.381-010	Automotive Painter 845.381-014	Auto Body Customizer 807.361-010	Auto Body Repairer 807.381-010
	DUTY II - Acetylene Welding Processes												
BF-25	Identifying welding processes					X						X	X
BF-26	Identifying welding gases					X						X	X
BF-27	Identifying gas welding equipment					X						X	X
BF-28	Demonstrating safe handling of equipment and gases					X						X	X
BF-29	Setting up equipment and lighting torch					X						X	X
BF-30	Forming and carrying a puddle (no filler rod)					X						X	X
BF-31	Welding outside corner joints (no filler rod)					X						X	X
BF-32	Forming beads with filler rod					X						X	X
BF-33	Cutting metal with the torch					X						X	X

TASK LISTING BY DOT CODE

OCCUPATIONAL AREA

Auto Body (Post Secondary)

	POSSIBLE EXIT POINTS DOT DESCRIPTION	Steam Cleaner	Body Masker	Auto Body Helper	Arc Welding Apprentice	Gas Welder Apprentice	Glass Installer	Auto Shop Estimator	Auto Painter Helper	Auto Painter Apprentice	Automotive Painter	Auto Body Customizer	Auto Body Repairer
	DOT NO.	915.687-026	749.687-018	807.687-010	810.384-010	811.684-010	865.684-010	807.267-010	845.684-014	845.381-010	845.381-014	807.361-010	807.381-010
TASK NO.	TASK NAME												
BF-34	Cutting and forming holes					X						X	X
BF-35	Welding butt joints					X						X	X
BF-36	Welding lap joints					X						X	X
BF-37	Forming beads with brass rods					X						X	X
BF-38	Brazing lap joints					X						X	X
	DUTY III - Electric Arc Welding Processes												
BF-39	Setting up the arc welder				X							X	X
BF-40	Demonstrating safe procedures				X							X	X
BF-41	Measuring for welding				X							X	X

TASK LISTING BY DOT CODE

OCCUPATIONAL AREA

Auto Body (Post Secondary)

POSSIBLE EXIT POINTS

TASK NO.	TASK NAME	DOT DESCRIPTION	Steam Cleaner	Body Masker	Auto Body Helper	Arc Welding Apprentice	Gas Welder Apprentice	Glass Installer	Auto Shop Estimator	Auto Painter Helper	Auto Painter Apprentice	Automotive Painter	Auto Body Customizer	Auto Body Repairer
		DOT NO.	915.687-026	749.687-018	807.687-010	810.384-010	811.684-010	865.684-010	807.267-010	845.684-014	845.381-010	845.381-014	807.361-010	807.381-010
BF-42	Welding butt joints					X							X	X
BF-43	Welding flat T-joints					X							X	X
BF-44	Welding lap joints					X							X	X
	DUTY IV - Body and Frame Alignment													
BF-45	Checking alignment								X				X	X
BF-46	Aligning body and frame								X				X	X

TASK LISTING BY DOT CODE

OCCUPATIONAL AREA

Auto Body (Post Secondary)

POSSIBLE EXIT POINTS

TASK NO.	TASK NAME	Steam Cleaner	Body Masker	Auto Body Helper	Arc Welding Apprentice	Gas Welder Apprentice	Glass Installer	Auto Shop Estimator	Auto Painter Helper	Auto Painter Apprentice	Automotive Painter	Auto Body Customizer	Auto Body Repairer
DOT NO.		915.687-026	749.687-018	807.687-010	810.384-010	811.684-010	865.684-010	807.267-010	845.684-014	845.381-010	845.381-014	807.361-010	807.381-010
	DUTY V - Metal Straightening and Preparation												
BF-47	Bumping and dinging techniques											X	X
BF-48	Correcting metal damage with a hammer and dolly block											X	X
BF-49	Removing paint, smoothing metal and finding low spots											X	X
BF-50	Removing a minor dent using a long pick hammer, all purpose dolly and adjustable file											X	X
BF-51	Removing a minor dent or gouge using a drill motor, pull rods and body file											X	X

TASK LISTING BY DOT CODE

OCCUPATIONAL AREA

Auto Body (Post Secondary)

POSSIBLE EXIT POINTS

TASK NO.	TASK NAME	Steam Cleaner 915.687-026	Body Masker 749.687-018	Auto Body Helper 807.687-010	Arc Welding Apprentice 810.384-010	Gas Welder Apprentice 811.684-010	Glass Installer 865.684-010	Auto Shop Estimator 807.267-010	Auto Painter Helper 845.684-014	Auto Painter Apprentice 845.381-010	Automotive Painter 845.381-014	Auto Body Customizer 807.361-010	Auto Body Repairer 807.381-010
BF-52	Filling 1/8" holes or smaller with soldering iron and solder											X	X
BF-53	Repairing a hole or rust damage using a fiberglass patch											X	X
BF-54	Removing rusted out area of a panel and replacing it with a new sheet metal patch											X	X
BF-55	Repairing damaged area using lead to fill imperfections											X	X
BF-56	Mixing and applying plastic body filler			X								X	X
BF-57	Repairing a tear in a panel											X	X
BF-58	Removing partial panel and welding in a patch											X	X

TASK LISTING BY DOT CODE

OCCUPATIONAL AREA

Auto Body (Post Secondary)

POSSIBLE EXIT POINTS

TASK NO.	TASK NAME	Steam Cleaner	Body Masker	Auto Body Helper	Arc Welding Apprentice	Gas Welder Apprentice	Glass Installer	Auto Shop Estimator	Auto Painter Helper	Auto Painter Apprentice	Automotive Painter	Auto Body Customizer	Auto Body Repairer
	DOT NO.	915.687-026	749.687-018	807.687-010	810.384-010	811.684-010	865.684-010	807.267-010	845.684-014	845.381-010	845.381-014	807.361-010	807.381-010
BF-59	Repairing broken fiberglass with fiberglass repair kit											X	X
	PAINTING AND REFINISHING												
	DUTY I - Metal Preparation												
PR-01	Locating paint code and determining how much and what type of material to order for the repair		X	X					X	X	X	X	X
PR-02	Washing and cleaning vehicle; removing old finish and treating bare metal for a good bond	X	X	X					X	X	X	X	X
PR-03	Masking a vehicle for spot, panel or overall painting		X	X					X	X	X	X	X

TASK LISTING BY DOT CODE

OCCUPATIONAL AREA

Auto Body (Post Secondary)

TASK NO.	TASK NAME	POSSIBLE EXIT POINTS DOT DESCRIPTION / DOT NO.	Steam Cleaner 915.687-026	Body Masker 749.687-018	Auto Body Helper 807.687-010	Arc Welding Apprentice 810.384-010	Gas Welder Apprentice 811.684-010	Glass Installer 865.684-010	Auto Shop Estimator 807.267-010	Auto Painter Helper 845.684-014	Auto Painter Apprentice 845.381-010	Automotive Painter 845.381-014	Auto Body Customizer 807.361-010	Auto Body Repairer 807.381-010
	DUTY II - Paint Application													
PR-04	Adjusting gun and air pressure to spray enamel,			X	X					X	X	X	X	X
	sealer and primer surfacer and apply to bare metal													
PR-05	Featheredging all broken areas of finish on a			X	X					X	X	X	X	X
	vehicle and applying sealer			X	X					X	X	X	X	X
PR-06	Applying primer surfacer and hand-sanding a			X	X					X	X	X	X	X
	vehicle wet or dry													
PR-07	Spot painting a solid color				X					X	X	X	X	X
PR-08	Painting a panel with a solid color				X					X	X	X	X	X
PR-09	Painting a vehicle with alyrd and acrylic enamel									X	X	X	X	X

TASK LISTING BY DOT CODE

OCCUPATIONAL AREA

Auto Body (Post Secondary)

POSSIBLE EXIT POINTS

	DOT DESCRIPTION	Steam Cleaner	Body Masker	Auto Body Helper	Arc Welding Apprentice	Gas Welder Apprentice	Glass Installer	Auto Shop Estimator	Auto Painter Helper	Auto Painter Apprentice	Automotive Painter	Auto Body Customizer	Auto Body Repairer
	DOT NO.	915.687-026	749.687-018	807.687-010	810.384-010	811.684-010	865.684-010	807.267-010	845.684-014	845.381-010	845.381-014	807.361-010	807.381-010
TASK NO.	TASK NAME												
PR-10	Painting a panel and spot painting a panel with metallic colors									X	X	X	X
PR-11	Compounding and polishing by hand and with a buffer	X	X							X	X	X	X
PR-12	Cleaning and maintaining paint spray guns		X							X	X	X	X
	DUTY III - Estimating												
PR-13	Estimating parts replacement							X				X	X
PR-14	Estimating labor							X				X	X

SECTION IV

CURRICULUM STRUCTURE & COURSE OUTLINE

CURRICULUM STRUCTURE

The following example is provided to illustrate one method in which the post secondary auto body repair curriculum can be structured. This example should not imply there are no other ways to structure the curriculum.

The sample is based on the curriculum outline and is a block teaching design.

The clock hours listed include instructional time in both the classroom and the laboratory. The additional "live work" hours are an approximation of the amount of time the student should spend on actual customer repair work. Live work should not be assigned until after successful completion of all the tasks for each quarter.

Live Work Management

It is desirable to conduct auto body repair training in an environment closely resembling that of an actual auto body shop. One method used in duplicating real conditions is customer repair work or "live work". Proper management of live work is essential to the success of the program. Often, both school personnel and the general public will exploit programs that take in such projects. This will result in the program becoming a low cost repair shop rather than a training facility. It is the administrator's and instructor's responsibility to establish and enforce a live work policy that will convey to customers the role of the vocational education program.

Live work should be assigned only to those students who have successfully completed all tasks for any given quarter.

The live work project should be carefully matched to the student's abilities. Failure to do this will result in the instructor spending a large amount of time as a worker rather than a teacher. Individualized programs are particularly vulnerable to mismanaged customer repair work. The sample live work policy that follows should provide the instructor with some guidance.

SAMPLE "LIVE WORK" POLICY

POLICIES AND PROCEDURES GOVERNING "LIVE" PRODUCTION JOBS

One of the most meaningful training vehicles is customer repair work or live work requested by a customer and performed by a student. However, such jobs pose serious problems in a public school shop, problems which require rigid regulations as indicated below:

1. Live jobs must provide training for the student. This training can range from skill perfection to developing work habits or customer relation experiences.
2. All materials, parts and supplies used or required in such live work must be paid for by the customer at school cost. Under no circumstances can the school give away public funds or property through this type training. There shall be no cost on labor.
3. All purchases for items needed to do such production jobs must be processed through the school accounts. Under no circumstances should instructors place themselves in a vulnerable position by buying and reselling to customers of the school shop.
4. All monies received from customers must be receipted on an official school receipt and deposited in the school account.
5. All live work must be done by the student. The only time an instructor is to do a live job should be when it is used for demonstration purposes.
6. Under no circumstances shall the instructor or student receive money, rewards, benefits or in any way personally profit from such work, either directly or indirectly. To do so is in direct violation of state law which prohibits the use of public property for personal gain.
7. The following policies concerning the purchase of parts are intended to protect shop teachers from

any possible inference that they, or students, are using public property for personal gain. This can only be done by conducting business through the school's accepted financial and accounting procedures. By doing so, adequate audit is always possible should the need arise.

a. Teachers will be allowed to purchase parts, at school cost, for live work. However, a purchase order must be obtained and given to the vendor when the order is placed.
b. Any items needed for the general operation of the shop programs or for instructional purposes must follow the usual procedure which includes administrative approval prior to ordering.

8. Customer Supplied Parts - For information concerning Customer Supplied Parts, check individual departmental policies.

9. What Work or Jobs May be Accepted

a. Individual instructors may only accept work from technical school staff and students. Other live work is subject to the approval of the Director.
b. All live work must enhance the students' current training activities.

10. How Work or Jobs Will Be Received

Every live production job will be written up on the official school work order form at the time the job is accepted. This work order is to show what instructor accepted the job, the customer's name, address, telephone number, and the nature of the work to be performed.

11. Financial Responsibility

All work is on a cash and carry basis. So far as possible, the customer should be given a fair estimate of his possible expenditure before the work begins. After work has begun and investigation reveals the cost will exceed your estimate by $10 or more, the customer should be consulted and his O.K. obtained before proceeding. By all means, the customer is to understand he must pay all charges due before receiving his goods. Any work delivered without being paid for will become the instructor's liability.

12. Prices to Charge

a. In cases where there are parts and materials used in performing the work, they are to be charged to the customer at school cost.
b. In cases where there are no parts or materials, the instructor should charge the established flat rate to cover incidental items such as rags, solvent, tape, etc. Flat rate will be established annually during September after recommendation by the instructor and approval by the Director.

AUTO BODY REPAIR CURRICULUM STRUCTURE

Course Number	Course	Clock Hours
	First Quarter	
	Body and Frame Repair:	
	Component Replacement	151
	Live Work	161
		312
	Second Quarter	
	Body and Frame Repair:	
	Component Replacement	100
	Acetylene Welding	62
	Live Work	150
		312
	Third Quarter	
	Body and Frame Repair:	
	Acetylene Welding	42
	Electric Welding	115
	Live Work	155
		312
	Fourth Quarter	
	Body and Frame Repair:	
	Frame Alignment	60
	Metal Straightening	97
	Live Work	155
		312

Course Number	Course	Clock Hours
	Fifth Quarter	
	Body and Frame Repair:	
	Metal Straightening	106
	Painting and Refinishing:	
	Metal Preparation	46
	Live Work	160
		312
	Sixth Quarter	
	Painting and Refinishing:	
	Paint Application	147
	Estimating	20
	Live Work	145
		312

COURSE OUTLINE

The following sample quarter system outline is to be used as an example to facilitate the development of alternative outlines for the individual learner. The listing of major blocks within a quarter is not to indicate a sequenced pattern. All duty areas are independent except for any listed prerequisites or related instruction tasks, therefore, a group of students should begin the quarter by learning different tasks. This allows better coordination of the lab hours and the learning objectives may be selected according to the type of "live" projects or equipment available.

The time estimations for completion of the activities are based on opinions of several auto body instructors and published data. The estimates are a minimum amount of time required and should be extended according to the learner's individual needs. The additional live work hours is an approximation of the amount of time the student should spend on customer repair projects. A complete explanation of live work is contained in the curriculum sturcture introduction.

Auto Body Repair Suggested Course Outline

Quarter I

Unit/Task	Title	Classroom & Lab hours:minutes
	MAJOR BLOCK: BODY AND FRAME REPAIR	
	DUTY I - Body and Frame Component Replacement	
BF-01	Demonstrating an understanding of auto body structures	3:00
BF-02	Naming the parts of a vehicle and describing how they are constructed and formed together	2:00
BF-03	Removing, replacing and aligning doors	10:00
BF-04	Removing and replacing grills and gravel deflectors	2:00
BF-05	Removing and replacing a door lock assembly	1:00
BF-06	Removing and replacing moldings	2:00
BF-07	Removing and replacing weatherstrip	5:00
BF-08	Removing and replacing interior trim	1:00
BF-09	Removing and replacing foor trim panel	3:00
BF-10	Removing, replacing and adjusting headlamps	10:00
BF-11	Removing and replacing a headliner	10:00
BF-12	Removing and replacing standard and energy-absorbing front bumpers	2:00
BF-13	Removing, replacing and aligning hood	15:00
BF-14	Removing and replacing front fenders and wheel housing units	15:00
BF-15	Removing and replacing fuel tanks	10:00
BF-16	Removing and replacing quarter panels and extension	40:00
BF-17	Removing and replacing bolt-in radiator supports	4:00
BF-18	Removing and replacing door skin	16:00
		151:00
	Quarter I Classroom Hours	151:00
	Quarter I Additional Live Work Hours	161:00
	Total Quarter I Hours	312:00

Auto Body Repair Suggested Course Outline

Quarter II

Unit/Task	Title	Classroom & Lab hours:minutes
	MAJOR BLOCK: BODY AND FRAME REPAIR (con't)	
	DUTY I - Body and Frame Component Replacement (con't)	
BF-19	Removing a complete front end assembly	30:00
BF-20	Removing and replacing windows with adhesive sealant	20:00
BF-21	Removing and replacing a windshield with rubber channels	20:00
BF-22	Removing and replacing a door glass regulator	10:00
BF-23	Removing and installing glass	10:00
BF-24	Removing and replacing power window motors and locks	10:00
		100:00
	DUTY II - Acetylene Welding Processes	
BF-25	Identifying welding processes	3:00
BF-26	Identifying welding gases	5:00
BF-27	Identifying gas welding equipment	4:00
BF-28	Demonstrating safe handling of equipment and gases	3:00
BF-29	Setting up equipment and lighting torch	6:00
BF-30	Forming and carrying a puddle (no filler rod)	15:00
BF-31	Welding outside corner joints (no filler rod)	10:00
BF-32	Forming beads with filler rod	10:00
BF-33	Cutting metal with the torch	6:00
		62:00
	Quarter II Classroom Hours	162:00
	Quarter II Additional Live Work Hours	150:00
	Total Quarter II Hours	312:00

Auto Body Repair Suggested Course Outline

Quarter III

Unit/Task	Title	Classroom & Lab hours:minutes
	MAJOR BLOCK: BODY AND FRAME REPAIR (con't)	
	DUTY II - Acetylene Welding Processes (con't)	
BF-34	Cutting and forming holes	6:00
BF-35	Welding butt joints	10:00
BF-36	Welding lap joints	10:00
BF-37	Forming beads with brass rods	10:00
BF-38	Brazing lap joints	6:00
		42:00
	DUTY III - Electric Arc Welding Processes	
BF-39	Setting up the arc welder	20:00
BF-40	Demonstrating safe procedures	5:00
BF-41	Measuring for welding	10:00
BF-42	Welding butt joints	40:00
BF-43	Welding flat T-joints	20:00
BF-44	Welding lap joints	20:00
		115:00
	Quarter III Classroom Hours	157:00
	Quarter III Additional Live Work Hours	155:00
	Total Quarter III Hours	312:00

Auto Body Repair Suggested Course Outline

Quarter IV

Unit/Task	Title	Classroom & Lab hours:minutes
	MAJOR BLOCK: BODY AND FRAME REPAIR (con't)	
	DUTY IV - Body and Frame Alignment	
BF-45	Checking alignment	30:00
BF-46	Aligning body and frame	30:00
		60:00
	DUTY V - Metal Straightening and Preparation	
BF-47	Bumping and dinging techniques	13:00
BF-48	Correcting metal damage with a hammer and dolly block	26:00
BF-49	Removing paint, smoothing metal and finding low spots	5:00
BF-50	Removing a minor dent using a long pick hammer, all purpose dolly and adjustable file	15:00
BF-51	Removing a minor dent or gouge using a drill motor, pull rods and body file	15:00
BF-52	Filling 1/8" holes or smaller with soldering iron and solder	13:00
BF-53	Repairing a hole or rust damage using a fiberglass patch	10:00
		97:00
	Quarter IV Classroom Hours	157:00
	Quarter IV Additional Live Work Hours	155:00
	Total Quarter IV Hours	312:00

Auto Body Repair Suggested Course Outline

Quarter V

Unit/Task	Title	Classroom & Lab hours:minutes
	MAJOR BLOCK: BODY AND FRAME REPAIR (con't)	
	DUTY V - Metal Straightening and Preparation (con't)	
BF-54	Removing rusted out area of a panel and replacing it with a new sheet metal patch	20:00
BF-55	Repairing damaged area using lead to fill imperfections	15:00
BF-56	Mixing and applying plastic body filler	5:00
BF-57	Repairing a tear in a panel	5:00
BF-58	Removing partial panel and welding in a patch	15:00
BF-59	Repairing broken fiberglass with fiberglass repair kit	46:00
		106:00
	MAJOR BLOCK: PAINTING AND REFINISHING	
	DUTY I - Metal Preparation	
PR-01	Locating paint code and determining how much and what type of material to order for the repair	10:00
PR-02	Washing and cleaning vehicle; removing old finish	10:00
PR-03	Masking a vehicle for spot, panel or overall painting	26:00
		46:00
	Quarter V Classroom Hours	152:00
	Quarter V Additional Live Work Hours	160:00
	Total Quarter V Hours	312:00

Auto Body Repair Suggested Course Outline

Quarter VI

Unit/Task	Title	Classroom & Lab hours:minutes
	MAJOR BLOCK: PAINTING AND REFINISHING	
	DUTY II - Paint Application	
PR-04	Adjusting gun and air pressure to spray enamel, sealer and primer surfacer and apply to bare metal	10:00
PR-05	Featheredging all broken areas of finish on a vehicle and applying sealer	15:00
PR-06	Applying primer surfacer and hand-sanding a vehicle wet or dry	10:00
PR-07	Spot painting a solid color	12:00
PR-08	Painting a panel with a solid color	18:00
PR-09	Painting a vehicle with alyrd and acrylic enamel	30:00
PR-10	Painting a panel and spot painting a panel with metallic colors	22:00
PR-11	Compounding and polishing by hand and with a buffer	20:00
PR-12	Cleaning and maintaining paint spray guns	10:00
		147:00
	DUTY III - Estimating	
PR-13	Estimating parts replacement	10:00
PR-14	Estimating labor	10:00
		20:00
	Quarter VI Classroom Hours	167:00
	Quarter VI Additional Live Work Hours	145:00
	Total Quarter VI Hours	312:00

SECTION V

UNIT GUIDES

UNIT GUIDES

Description

In this section the tasks to be taught in each course are presented in sequential order. Each task is listed on a separate page so that it may be taken out of the guide for daily lesson planning or regrouped with other tasks to fit the individual teacher's own preference for teaching order. The task pages may be used for planning and executing group instruction or for individualized instruction. Each page in the UNIT GUIDES section contains the following information:

TASK: This is a short and concise statement of the task to be taught.

PERFORMANCE OBJECTIVE: The performance expected of the student after completing the unit is stated in stem form, without a specific statement of all conditions, equipment and performance standard (these are listed in a criterion referenced measure in the Evaluation section of the task page).

INSTRUCTIONAL ACTIVITIES: Suggested learning activities are presented. These activities include providing information, demonstration, practical applications and related instruction.

INSTRUCTIONAL MATERIALS: The materials that are necessary to carry out the instructional activities are listed. These include textbooks, audio visuals and equipment. Textbooks are referenced by author with the title of the book contained in the textbook list in the

Instructional Resource section. In the event of more than one textbook per author then the textbook referenced will be numbered.

EVALUATION: This section contains a criterion referenced measure and reference to any test items or other evaluation measures that are available to the teacher. V'TECS catalogs are cross referenced to each program task by task number.

CLASSROOM HOURS: The estimated time for completion of the instructional activities and the evaluation are indicated. This time estimate is stated in hours of classroom time but also includes shop hours.

TASK

BF-01 Demonstrating an understanding of auto body structures and auto body shop safety procedures

PERFORMANCE OBJECTIVE

Describe the structural soundness which is built into the body and frame of vehicles.

INSTRUCTIONAL ACTIVITIES

Provide Information On:

a. Auto body shop safety
b. Crowns
c. Angles and flanges
d. Fender bends
e. U-chanels and box sections
f. Passenger car frames
g. Drop center
h. Unit body construction
i. Commercial vehicle frame

Provide Demonstration On:

Demonstrate to the learner how crown surfaces have a tendency to return to original shape.

Provide Practical Application On:

a. Have the learner identify different metal configurations and frame construction. This can be done by numbering the areas and have the learner match the number to the item on a live automobile.

b. Have the learner develop a safety checklist.

INSTRUCTIONAL MATERIALS

Textbooks:

Spicer

A/Vs:

Bergwall, "Safety in the Auto Body Shop" (Filmstrip)

CLASSROOM HOURS 3

EVALUATION (BF-01)

a. The learner will describe metal configurations and their purpose, explain the shape of frames and their construction and explain what is meant by low center of gravity. This must be done with 70% accuracy. The learner must prepare a safety check list and identify all known hazards with 100% accuracy.

b. Test questions are available from text references previously listed.

TASK

BF-02 Naming the parts of a vehicle and describing how they are constructed and formed together

PERFORMANCE OBJECTIVE

Name the parts of a vehicle and describe their functions.

INSTRUCTIONAL ACTIVITIES

Provide Information On:

a. Inner construction
b. Outer construction
c. Cowl
d. Instrument panel
e. Roof stiffeners
f. Under body
g. Quarter panel
h. Quarter panel wheelhouse
i. Center piller
j. Cabs
k. Unitized body variations

Provide Practical Application On:

Point out basic body parts and panels.

INSTRUCTIONAL MATERIALS

Textbooks:	Student Manuals:
Spicer	Oklahoma, Auto Body (Units 1, 2, 3, 4)

CLASSROOM HOURS 2

EVALUATION (BF-02)

a. Following instructions, the learner will explain: inner construction and why it must be considered; the differences between separate frame and body and unitized body; the MacPherson Street System.

b. Test questions are available from text references previously listed.

TASK

BF-03 Removing, replacing and aligning doors

PERFORMANCE OBJECTIVE

Remove, replace and align front or rear door.

INSTRUCTIONAL ACTIVITIES

Provide Information On:

a. Door alignment
b. Hinges
c. Latch assemblies
d. Welded hinges

Provide Demonstration On:

Removing, replacing and aligning a car door

Provide Practical Application On:

Removing, replacing and aligning a car door

INSTRUCTIONAL MATERIALS

Textbooks:

Rhone

A/Vs:

a. Georgia, "Auto Body Repair" (Slide set-110)
b. Prentice-Hall, "Auto-body Repair: Metal Work" (Filmstrip #5)

Student Manuals:

Georgia, Auto Body Repair (ABR-107)

Tools and Equipment:

a. Mechanics tool box
b. Shims
c. Floor jack

CLASSROOM HOURS 10

EVALUATION (BF-03)

a. Given a vehicle and necessary tools and equipment, the learner will remove, replace and adjust the door so no more than a 1/4" gap exists all around and exterior surfaces are flush with the body.

b. Test questions are available in text references previously listed.

TASK

BF-04 Removing and replacing grills and gravel deflectors.

PERFORMANCE OBJECTIVE

Remove and replace grills and gravel deflectors.

INSTRUCTIONAL ACTIVITIES

Provide Information On:

a. Grills
b. Gravel deflectors
c. Braces
d. Fasteners

Provide Demonstration On:

a. Wire connections
b. Grill replacement

Provide Practical Application On:

Replacing a grill

INSTRUCTIONAL MATERIALS

Textbooks:

Taite

A/Vs:

Bergwall, "Auto Body
Tools Explained"
(Filmstrip #1)

Student Manuals:

Oklahoma, *Auto Body*
(Units 4, 11)

Tools and Equipment:

Mechanics tool set

CLASSROOM HOURS

CLASSROOM HOURS	2

EVALUATION (BF-04)

a. Given a vehicle with grill and gravel deflector to be replaced, the learner will remove and replace the grill and gravel deflector. The finished product must be properly aligned and free of scratches.

b. Test questions are available from text references previously listed.

c. V'TECS, Auto Body Repair, Task No. 21

TASK

BF-05 Removing and replacing a door lock assembly

PERFORMANCE OBJECTIVE

Remove and replace a door lock assembly.

INSTRUCTIONAL ACTIVITIES

Provide Information On:

a. Rods
b. Locking mechanisms
c. Door handles
d. Outside locking
e. Inside locking

Provide Demonstration On:

Installing lock assemblies

Provide Practical Application On:

Installing lock assemblies

INSTRUCTIONAL MATERIALS

Textbooks:

Taite

A/Vs:

Bergwall, "Auto Body
Tools Explained"
(Filmstrip #1)

Student Manuals:

Oklahoma, Auto Body (Unit 4)

Tools and Equipment:

a. Door handle removing tool
b. Flat blade tool
c. Screwdriver
d. Heavy grease
e. Wrenches

CLASSROOM HOURS 1

EVALUATION (BF-05)

a. Given a vehicle in which a locking assembly is in need of replacement or repair, the learner will obtain necessary tools and materials, remove all appropriate hardware and trim, remove locking assembly and install and adjust for proper operation.

b. Test questions are available in text references previously listed.

c. V'TECS, Auto Body Repair, Task No. 19

TASK

BF-06 Removing and replacing moldings so that they are aligned properly and fastened tightly.

PERFORMANCE OBJECTIVE

Remove and replace moldings so that they are aligned properly and fastened tightly.

INSTRUCTIONAL ACTIVITIES

Provide Information On:

a. Molding tools
b. Fasteners
c. Chips
d. Adhesive bonds
e. Alighment

Provide Demonstration On:

a. Applying adhesive bonds
b. Installing fasteners
c. Installing moldings

Provide Practical Application On:

Replacing moldings

INSTRUCTIONAL MATERIALS

Textbooks:

Taite

A/Vs:

Bergwall, "Auto Body Tools Explained" (Filmstrip #1)

Student Manuals:

Oklahoma, Auto Body (Unit 11)

Tools and Equipment:

a. Safety glasses
b. Molding tools
c. Rivet gun
d. Chalk line
e. Fasteners
f. Drill motor
g. Drill bit

CLASSROOM HOURS 2

EVALUATION (BF-06)

a. Given a vehicle with molding to be removed, replaced or installed on a panel, the learner will align molding drill holes and install fasteners or chips.

b. Test questions are available in text references previously listed.

c. V'TECS, Auto Body Repair, Task No. 26

TASK

BF-07 Removing and replacing weatherstrip

PERFORMANCE OBJECTIVE

Remove and replace weatherstrip.

INSTRUCTIONAL ACTIVITIES

Provide Information On:

a. Fasteners
b. Weatherstrip adhesive
c. Weatherstrip tool

Provide Demonstration On:

Demonstrate the use of tool J-21104 (fisher bodies).

Provide Practical Application On:

Replacing weatherstrip

INSTRUCTIONAL MATERIALS

Textbooks:

Toboldt

Student Manuals:

Oklahoma, Auto Body
Unit 13

Tools and Equipment:

Weatherstrip removing tool
J-21104

CLASSROOM HOURS 5

EVALUATION (BF-07)

a. Given a vehicle in need of weatherstrip removal, the learner will remove and install weatherstrip. There should be no broken fasteners or adhesive showing on weatherstrip or door face.

b. Test questions are available in text references previously listed.

TASK

BF-08 Removing and replacing interior trim

PERFORMANCE OBJECTIVE

Remove and replace interior trim.

INSTRUCTIONAL ACTIVITIES

Provide Information On:

Types of fasteners

Provide Demonstration On:

Interior trim fasteners

Provide Practical Application On:

Replacing interior trim

INSTRUCTIONAL MATERIALS

Textbooks:

Taite

A/Vs:

Georgia, "Auto Body Repair" (Slide set ABR-211)

Student Manuals:

a. Oklahoma, Auto Body (Unit 13)
b. Georgia, Auto Body Repair (ABR-211)

Tools and Equipment:

a. Screwdriver
b. Chip removing tool

CLASSROOM HOURS 1

EVALUATION (BF-08)

a. Given a vehicle with trim to be removed and replaced, the learner will remove and replace interior trim.

b. Test questions are available in text references previously listed.

c. V'TECS, Auto Body Repair, Task Nos. 22, 23

TASK

BF-09 Removing and replacing door trim panel

PERFORMANCE OBJECTIVE

Remove and replace door trim panel.

INSTRUCTIONAL ACTIVITIES

Provide Information On:

a. Chip removing tool
b. Water and dust protector

Provide Demonstration On:

a. Protecting door panel
b. Removing fasteners

Provide Practical Application On:

Installing door trim panels

INSTRUCTIONAL MATERIALS

Textbooks:

Taite

Student Manuals:

Oklahoma, Auto Body
Unit 13

Tools and Equipment:

a. Door handle chip remover tool
b. Screwdriver, #2 Phillips

CLASSROOM HOURS

3

EVALUATION (BF-09)

a. Given a vehicle with door trim to be removed and replaced, the learner will determine type attachments, remove panel and replace with no damage to trim.

b. Test questions are available in text references previously listed.

TASK

BF-10 Removing, replacing and adjusting headlamps

PERFORMANCE OBJECTIVE

Remove, replace and adjust headlamps with or without the aid of headlight adjusting equipment.

INSTRUCTIONAL ACTIVITIES

Provide Information On:

a. Quick disconnect terminals
b. Headlight adjusting equipment
c. Without headlight adjusting equipment

Provide Demonstration On:

a. Preliminary alignment procedures
b. Adjusting headlights

Provide Practical Application On:

Installing and adjusting headlights

INSTRUCTIONAL MATERIALS

Textbooks:

Taite

A/Vs:

Georgia, "Auto Body Repair" (Slide set ABR-103, 104)

Student Manuals:

Georgia, Auto Body Repair (ABR-701)

CLASSROOM HOURS 10

EVALUATION (BF-10)

a. Given a vehicle with headlamp in need of replacement, the learner will remove, replace and adjust the headlamp with or without headlight-adjusting equipment. The installation must be in accordance with state or province regulations.

b. Test questions are available in text references previously listed.

c. V'TECS, Auto Body Repair, Task No. 12

TASK

BF-11 Removing and replacing a headliner

PERFORMANCE OBJECTIVE

Remove and replace a headliner.

INSTRUCTIONAL ACTIVITIES

Provide Information On:

a. Headliner tool
b. Interior trim
c. Roff stiffeners

Provide Demonstration On:

Installing a headliner

Provide Practical Application On:

Installing a new headliner

INSTRUCTIONAL MATERIALS

Textbooks:

Taite

A/Vs:

Georgia, "Auto Body Repair"
(Slide set ABR-210)

Student Manuals:

a. Oklahoma, Auto Body (Unit 13)
b. Georgia, Auto Body Repair (ABR-210)

CLASSROOM HOURS 10

EVALUATION (BF-11)

a. Given a vehicle, the learner will remove, replace and install headlining. The installed lines should be smooth, unwrinkled and fastened securely and neatly.

b. Test questions are available in text references previously listed.

TASK

BF-12 Removing and replacing a standard and energy-absorbing front bumper

PERFORMANCE OBJECTIVE

Remove and replace both standard and energy-absorbing front bumpers.

INSTRUCTIONAL ACTIVITIES

Provide Information On:

a. Safety
b. Lighting wires
c. Reinstallation
d. Alignment
e. Energy absorbing units

Provide Demonstration On:

a. Installation of fasteners
b. Alignment of bumpers

Provide Practical Application On:

Installing bumpers

INSTRUCTIONAL MATERIALS

Textbooks:

Taite

A/Vs:

a. Georgia, "Auto Body Repair" (Slide Set ABR-102, 117)
b. Bergwall, "Auto Body Tools Explained" (Filmstrip #1, 2)

Student Manuals:

a. Oklahoma, Auto Body Unit 4
b. Georgia, Auto Body Repair (ABR-102)

Tools and Equipment:

a. Set mechanics tools
b. Liquid-wrench
c. Oxicetelene equipment

CLASSROOM HOURS

2

EVALUATION (BF-12)

a. Given a vehicle, the learner will remove and replace a front bumper according to manufacturer's specifications. All fasteners must be secure and the work area must be clean and free of grease, dirt and fingerprints.

b. Test questions are available in text references previously listed.

c. V'TECS, Auto Body Repair, Task No. 6

TASK

BF-13 Removing, replacing and aligning hood and deck lids

PERFORMANCE OBJECTIVE

Remove and replace hood and deck lids.

INSTRUCTIONAL ACTIVITIES

Provide Information On:

a. Hood and fender alignment
b. Shims
c. Adjustment brackets
d. Hood lock
e. Hood striker

Provide Demonstration On:

a. Removing a hood
b. Removing a deck lid
c. Removing shims
d. Replacing shims

Provide Practical Application On:

a. Removing a hood
b. Removing a deck lid

INSTRUCTIONAL MATERIALS

Textbooks:

Taite

A/Vs:

a. Georgia, "Auto Body Repair" (Slide set ABR-101, 107)
b. Prentice-Hall, "Autobody Repair: Metal Work" (Filmstrip #5)
c. Bergwall, "Auto Body Tools Explained"

Student Manuals:

Georgia, Auto Body Repair (ABR-106,110)

Tools and Equipment:

a. Hand tools
b. Selection of shims

CLASSROOM HOURS 15

EVALUATION (BF-13)

a. Given a vehicle in need of hood or deck lid replacement, the learner will remove and replace hood or deck lid so it lines up with the fenders or quarter panels.

b. Test questions are available in text references previously listed.

c. V'TECS, Auto Body Repair, Task No. 1

TASK

BF-14 Removing and replacing front fenders and wheel housing

PERFORMANCE OBJECTIVE

Remove and replace front fenders and wheel housing units.

INSTRUCTIONAL ACTIVITIES

Provide Information On:

a. Front section
b. Basic adjustments
c. Shims

Provide Demonstration On:

a. Removing and installing bolt-on units
b. Removing and installing weld-on units

Provide Practical Application On:

Replacing fenders and wheel housings

INSTRUCTIONAL MATERIALS

Textbooks:

a. Rhone
b. Toboldt

A/Vs:

a. Georgia, "Auto Body Repair" (Slide set 108)
b. Prentice-Hall, "Autobody Repair: Metal Work" (Filmstrip #5)

Student Manuals:

Georgia, Auto Body Repair (ABR-105, 111)

Tools and Equipment:

a. Mechanics tool set
b. Shims

CLASSROOM HOURS 15

EVALUATION (BF-14)

a. Given a vehicle, the learner will remove and replace a front fender and fender shield. The fender should be aligned with the door headlamp, filler panel and hood.
b. Test questions are available in text references previously listed.
c. V'TECS, Auto Body Repair, Task No. 3

TASK

BF-15 Removing and replacing fuel tanks

PERFORMANCE OBJECTIVE

Repair and replace a leaking fuel tank.

INSTRUCTIONAL ACTIVITIES

Provide Information On:

a. Removal and replacement
b. Soldering of fuel tank
c. Safety of removed fuel

Provide Demonstration On:

a. Safe storage of gasoline
b. Removing and replacing a fuel tank

Provide Practical Application On:

Repairing a fuel tank

INSTRUCTIONAL MATERIALS

A/Vs:

a. Georgia, "Auto Body Repair" (ABR116)
b. Bergwall, "Auto Body Hand Tools Explained" (Filmstrips #1, 2)

Student Manuals:

Georgia, Auto Body Repair (ABR-112)

Tools and Equipment:

a. Safety cans
b. Brass shim stock
c. Metal snips
d. Acid core solder
e. Electric soldering iron
f. Wire brush

CLASSROOM HOURS 10

EVALUATION (BF-15)

a. Given a fuel tank that leaks, the learner will clean hole and solder, brass patch and install a new tank.

b. Test questions are available in text references previously listed.

TASK

BF-16 Removing and replacing quarter panels and panel extensions

PERFORMANCE OBJECTIVE

Remove and replace quarter panels and panel extensions.

INSTRUCTIONAL ACTIVITIES

Provide Information On:

a. Pull old metal and frame back to alignment
b. Removal of panel
c. Replace panel

Provide Demonstration On:

a. How to remove panel
b. How to align panel

Provide Practical Application On:

Removing and replacing quarter panel and extension

INSTRUCTIONAL MATERIALS

Textbooks:

MacPherson

A/Vs:

Georgia, "Auto Body Repair" (Slide set ABR-601A, 601B, 5.8A)

Student Manuals:

a. Oklahoma, Auto Body (Unit 6)
b. Georgia, Auto Body Repair (ABR 601, 602)

Tools and Equipment:

a. Hand tools
b. Frame puller
c. Acert torch
d. Old or new panel

CLASSROOM HOURS 40

EVALUATION (BF-16)

a. Given a vehicle, the learner will remove and replace a quarter panel according to the manufacturer's specifications.

b. Test questions are available in text references previously listed.

TASK

BF-17 Removing and replacing bolt-in radiator supports

PERFORMANCE OBJECTIVE

Remove and replace bolt-in radiator supports.

INSTRUCTIONAL ACTIVITIES

Provide Information On:

a. Shims
b. Gusset
c. Cushion assembly

Provide Demonstration On:

a. Removing radiator support
b. Replacing radiator support

Provide Practical Application On:

a. Removing radiator support
b. Replacing radiator support

INSTRUCTIONAL MATERIALS

Textbooks:

Taite

A/Vs:

a. Georgia, "Auto Body Repair" (ABR-113, 121)
b. Bergwall, "Auto Body Tools Explained" (Filmstrip #1)

Student Manuals:

a. Oklahoma, Auto Body (Unit 4)
b. Georgia, Auto Body Repair (ABR-104)

Tools and Equipment:

Hand tools

CLASSROOM HOURS

4

EVALUATION (BF-17)

a. Given a vehicle, the learner will remove and replace the support according to the manufacturer's specifications.

b. Test questions are available in text references previously listed.

TASK

BF-18 Removing and replacing door skin

PERFORMANCE OBJECTIVE

Remove and replace door skin.

INSTRUCTIONAL ACTIVITIES

Provide Information On:

a. Discing outer panel edge
b. Removing outer panel
c. Align inner panel
d. Flanging edge

Provide Demonstration On:

a. Removing outer panel
b. Flanging outer panel
c. Welding panel

Provide Practical Application On:

a. Removing outer panel
b. Flanging outer panel
c. Welding panel

INSTRUCTIONAL MATERIALS

Textbooks:

MacPherson

A/Vs:

Georgia,"Auto Body Repair" (ABR-111, 11-1)

Student Manuals:

a. Oklahoma, Auto Body (Unit 6)
b. Georgia, Auto Body Repair (ABR-608)

Tools and Equipment:

a. Safety glasses
b. Gloves
c. Grinder
d. Hand tools
e. Acetylene welding outfit

CLASSROOM HOURS 16

EVALUATION (BF-18)

Given a vehicle, the learner will remove door skin, align and repair inner door, flange new skin and weld skin to inner door panel. The door skin must be shaped according to its original shape and dimensions.

TASK

BF-19 Removing a complete front end assembly

PERFORMANCE OBJECTIVE

Remove a complete front end assembly.

INSTRUCTIONAL ACTIVITIES

Provide Information On:

a. Repair new parts
b. Removing old useable parts

Provide Demonstration On:

How to install hood springs without special tools

Provide Practical Application On:

Removing and repairing complete front end assembly

INSTRUCTIONAL MATERIALS

A/Vs:

a. Georgia, "Auto Body Repair" (Slide set ABR-119)
b. Bergwall, "Auto Body Tools Explained" (Filmstrip #1)

Student Manuals:

Georgia, Auto Body Repair (ABR-605)

Tools and Equipment:

a. Hand tools
b. Paint gun
c. Paint materials

CLASSROOM HOURS

30

EVALUATION (BF-19)

a. Given a vehicle, the learner will remove, repair and replace front end parts. The replacement must be made according to manufacturer's specifications.

b. Test questions are available in text references previously listed.

TASK

BF-20 Removing and replacing window with adhesive sealent

PERFORMANCE OBJECTIVE

Remove window with adhesive sealent and replace it.

INSTRUCTIONAL ACTIVITIES

Provide Information On:

a. Hot knife method
b. Piano wire method
c. Repair rust damage

Provide Demonstration On:

Straightening, removing and replacing molding clips

Provide Practical Application On:

Replacing adhesive held glass

INSTRUCTIONAL MATERIALS

Textbooks:

Toboldt

A/Vs:

Georgia, "Auto Body Repair" (Slide set ABR-204, 205)

Student Manuals:

Oklahoma, Auto Body (Unit 12, 13)

Tools and Equipment:

a. Protective covers
b. Safety glasses
c. Hot knife
d. Cold knife
e. Fender covers
f. Sharp scraper
g. Tape

(Continued on back)

CLASSROOM HOURS 20

EVALUATION (BF-20)

a. Given a vehicle and necessary tools and equipment, the learner will remove a window using either the hot knife method or piano wire method. The learner will install a new window according to manufacturer's specifications.

b. Test questions are available in text references previously listed.

c. V'TECS, Auto Body Repair, Task No. 37

INSTRUCTIONAL MATERIALS

Tools and Equipment:

h. Windshield kit
i. Screwdriver
j. Caulking gun
k. Molding clips
l. Wire brush
m. ¼" socket set
n. Molding removal tool
o. Cleaning solvent
p. Rags

TASK

BF-21 Removing and replacing a windshield with rubber channel

PERFORMANCE OBJECTIVE

Remove and replace a windshield.

INSTRUCTIONAL ACTIVITIES

Provide Information On:

a. Laminated glass
b. Tempered glass
c. Rubber channel
d. Pinch weld

Provide Demonstration On:

Straightening, removing and replacing molding clips

Provide Practical Application On:

Replacing rubber-held glass

INSTRUCTIONAL MATERIALS

Textbooks:

a. Taite
b. Toboldt

A/Vs:

Georgia, "Auto Body Repair" (Slide set ABR-201)

Student Manuals:

Georgia, Auto Body Repair (ABR-201)

Tools and Equipment:

a. Hardware removing tool
b. Flat screwdriver
c. Safety glasses
d. Car seat protector
e. Fender cover
f. Lubricant
g. Body sealer
h. Strong cord
i. Bent stainless steel rods
j. Rags
k. Cleaning solvent

CLASSROOM HOURS

20

EVALUATION (BF-21)

a. Given a vehicle, the learner will remove and replace a windshield. The windshield should be installed according to manufacturer's specifications and should be free of any leaks.

b. Test questions are available in text references previously listed.

c. V'TECS, Auto Body Repair, Task No. 37

TASK

BF-22 Removing and replacing door glass regulator

PERFORMANCE OBJECTIVE

Remove and replace a door glass regulator.

INSTRUCTIONAL ACTIVITIES

Provide Information On:

a. Removal of assembly
b. Lubrication
c. Adjustment

Provide Demonstration On:

Replacing a regulator

Provide Practical Application On:

Replacing window regulator

INSTRUCTIONAL MATERIALS

Textbooks:

a. Taite
b. MacPherson

A/Vs:

Georgia, "Auto Body Repair" (Slide set ABR-118)

S[illegible]ent Manuals:

Georgia, Auto Body Repair (ABR-205)

CLASSROOM HOURS

10

EVALUATION (BF-22)

a. Given a vehicle and necessary tools and equipment, the learner will remove and replace the regulator. The regulator should be replaced according to the manufacturer's specifications.

b. Test questions are available in text references previously listed.

c. V'TECS, Auto Body Repair, Task No. 25

TASK

BF-23 Removing and installing glass

PERFORMANCE OBJECTIVE

Remove and install glass.

INSTRUCTIONAL ACTIVITIES

Provide Information On:

a. Removal of assembly
b. Ventilator frame
c. Window glass
d. Lubrication
e. Adjustment

Provide Demonstration On:

Replacing movable glass

Provide Practical Application On:

Replacing movable glass

INSTRUCTIONAL MATERIALS

Textbooks:

a. Rhone
b. Taite
c. Spicer
d. MacPherson

A/Vs:

Georgia, "Auto Body Repair" (Slide set ABR-109, 110, 202)

Student Manuals:

a. Oklahoma, Auto Body (Units 12, 13)

b. Georgia, Auto Body Repair (ABR-202, 204, 206, 207)

Tools and Equipment:

a. Door handle removing tool
b. Flat blade tool
c. Screwdriver
d. Heavy grease
e. 5 wrenches

CLASSROOM HOURS

10

EVALUATION (BF-23)

a. Given a vehicle and necessary tools and equipment, the learner will remove and replace a manually operated window assembly. The installation must meet industry requirements.

b. Test questions are available in text references previously listed.

c. V'TECS, Auto Body Repair, Task Nos. 35, 36

TASK

BF-24 Removing and replacing power window motors

PERFORMANCE OBJECTIVE

Remove and replace a power window motor and power lock solenoid.

INSTRUCTIONAL ACTIVITIES

Provide Information On:

a. Power motor
b. Power lock solenoid
c. Safety precautions

Provide Demonstration On:

Replacement procedures

Provide Practical Application On:

Replacing power window controls

INSTRUCTIONAL MATERIALS

Textbooks:

a. Rhone
b. Taite

A/Vs:

Georgia, "Auto Body Repair" (Slide set ABR-702)

Student Manual:

Georgia, Auto Body Repair (ABR-704)

Tools and Equipment:

a. Door handle removing tool
b. Flat blade tool
c. Screwdrivers
d. Heavy grease
e. Wrenches

CLASSROOM HOURS

10

EVALUATION (BF-24)

a. Given a vehicle and necessary tools and equipment, the learner will remove and replace a power motor or lock solenoid. The installation must meet industry requirements.

b. Test questions are available in text references previously listed.

c. V'TECS, Auto Body Repair, Task Nos. 19, 20, 24

TASK

BF-25 Identifying welding processes

PERFORMANCE OBJECTIVE

Identify various welding processes, welding terms and types of welding.

INSTRUCTIONAL ACTIVITIES

Provide Information On:

a. Definition of welding
b. Classify various welding processes
c. Types of welding used in auto body repair

INSTRUCTIONAL MATERIALS

Textbooks:

a. Sargent
b. Althouse, et al.

A/Vs:

a. Prentice-Hall, "Oxy-acetylene Welding" (Filmstrip #1)
b. Bergwall, "Welding Explained: Oxy-acetylene Fusion" (Filmstrip #1)
c. Georgia, Auto Body Repair (Slide set ABR-A-1)

Student Manuals:

a. Oklahoma, Auto Body (Unit 5)
b. Georgia, Auto Body Repair (A-1)

CLASSROOM HOURS 3

EVALUATION (BF-25)

a. Given instruction, the learner will demonstrate his/her knowledge of the welding process by answering test items with at least 85% accuracy.

b. Test questions are available in text references previously listed.

c. V'TECS, Auto Body Repair, Task No. 18

TASK

BF-26 Identifying welding gases

PERFORMANCE OBJECTIVE

Identify the types of cylinders used for gas welding and the gases that go in them.

INSTRUCTIONAL ACTIVITIES

Provide Information On:

a. Computing cost
b. Damage charges
c. Safety devices
d. Cylinders
e. Gases

Provide Demonstration On:

Demonstrating double-seating valve

Provide Practical Application On:

Computing acetylene cost

INSTRUCTIONAL MATERIALS

Textbooks:

a. Sargent
b. Althouse, et al.

A/Vs:

a. Prentice-Hall, "Oxy-acetylene Welding" (Filmstrip #1)
b. Bergwall, "Welding Explained: Oxy-acetylene Fusion" (Filmstrip #2)
c. Georgia, Auto Body Repair (Slide set ABR-A-2)

Student Manuals:

a. Oklahoma, Auto Body (Unit 5)
b. Georgia, Auto Body Repair (A-2)

CLASSROOM HOURS	5

EVALUATION (BF-26)

a. Given instruction, the learner will demonstrate his/her knowledge by answering test items with at least 85% accuracy.

b. Test questions are available in text references previously listed.

c. V'TECS, Auto Body Repair, Task No. 18

TASK

BF-27 Identifying gas welding equipment

PERFORMANCE OBJECTIVE

Identify the parts and describe the function of the oxygen and acetylene regulators.

INSTRUCTIONAL ACTIVITIES

Provide Information On:

a. Purpose of regulators
b. Operation of regulators
c. Adjusting regulators
d. Safety of regulators

Provide Demonstration On:

Disassembling a regulator

Provide Practical Application On:

Repairing and adjusting a regulator

INSTRUCTIONAL MATERIALS

Textbooks:

a. Sargent
b. Althouse, et al.

A/Vs:

a. Prentice-Hall, "Oxy-acetylene Welding" (Filmstrip #1)
b. Bergwall, "Welding Explained: Oxy-acetylene Fusion" (Filmstrip #2)
c. Georgia, "Auto Body Repair" (Slide set ABR-A-3)

Student Manuals:

a. Oklahoma, Auto Body (Unit 5)
b. Georgia, Auto Body Repair (A-3)

Tools and Equipment:

a. 1 regulator
b. 1 small screwdriver

CLASSROOM HOURS

4

EVALUATION (BF-27)

a. Given a regulator, the learner will take a regulator apart, set pointer on zero and put it back together.

b. Test questions are available in text references previously listed.

c. V'TECS, Auto Body Repair, Task No. 18

TASK

BF-28 Demonstrating safe handling of equipment and gases

PERFORMANCE OBJECTIVE

Demonstrate the safe uses of torches and tips.

INSTRUCTIONAL ACTIVITIES

Provide Information On:

a. Purpose of the mixing head
b. The difference between the two tips of torches used today
c. Needle valve
d. Selection and care of torches and tips

Provide Practical Application On:

Having learner select torch and tips for welding

INSTRUCTIONAL MATERIALS

Textbooks:

Althouse, et al.

A/Vs:

a. Prentice-Hall, "Oxy-acetylene Welding: (Filmstrips # 1, 2, 3)
b. Bergwall, "Welding Explained: Oxy-acetylene Fusion" (Filmstrip #2)
c. Georgia,"Auto Body Repair" (Slide set ABR-A-5)

Student Manuals:

a. Oklahoma, Auto Body (Unit 5)
b. Georgia, Auto Body Repair (A-5)

Tools and Equipment:

a. Torch
b. Tips
c. Tip cleaner

CLASSROOM HOURS

3

EVALUATION (BF-28)

a. Given a torch and tip, the learner will select the proper tips for welding 18 Ga, 16 Ga 1/8" metal, clean a tip properly.

b. Test questions are available in text references previously listed.

c. V'TECS, Auto Body Repair, Task No. 18

TASK

BF-29 Setting up equipment and lighting the torch

PERFORMANCE OBJECTIVE

Demonstrate how to set up the equipment and light the torch.

INSTRUCTIONAL ACTIVITIES

Provide Information On:

a. Connecting equipment
b. Set pressure
c. Check for leaks
d. Safety hazards

Provide Demonstration On:

Demonstrating the three types of flame

Provide Practical Application On:

Demonstrating how to set up and adjust gauges before lighting torch

INSTRUCTIONAL MATERIALS

Textbooks:

Althouse, et al.

A/Vs:

a. Prentice-Hall, "Oxy-acetylene Welding" (Filmstrip #2)
b. Bergwall, "Welding Explained: Oxy-acetylene Fusion" (Filmstrip #3)
c. Georgia, "Auto Body Repair" (Slide set ABR-A-4, A-6)

Student Manuals:

a. Oklahoma, Auto Body (Unit 5)
b. Georgia, Auto Body Repair (A-4, A-6)

Tools and Equipment:

a. Welding outfit
b. Tip cleaner
c. Striker

CLASSROOM HOURS

6

EVALUATION (BF-29)

a. Given welding equipment, the learner will connect hoses to the regulator, adjust torch light and explain the three types of flames.

b. Test questions are available in text references previously listed.

C. V'TECS, Auto Body Repair, Task No. 18

TASK

BF-30 Forming and carrying a puddle (no filler rod)

PERFORMANCE OBJECTIVE

Form and carry a puddle without a filler rod.

INSTRUCTIONAL ACTIVITIES

Provide Information On:

a. Torch position
b. Inner cone distance

Provide Demonstration On:

Demonstrating to the learner how to form puddle and move the torch to control puddle

Provide Practical Application On:

Carrying a welding puddle

INSTRUCTIONAL MATERIALS

A/Vs:

a. Prentice-Hall, "Oxyacetylene Welding" (Filmstrip #4, 6)
b. Bergwall, "Welding Explained: Oxyacetylene Fusion" (Filmstrip #4)
c. Georgia, Auto Body Repair (Slide set ABR-A-8)

Student Manuals:

a. Oklahoma, Auto Body (Unit 5)
b. Georgia, Auto Body Repair (A-8)

Tools and Equipment:

a. Goggles
b. Gloves
c. Spark lighter
d. Pliers
e. Light gauge metal r" x 6"

CLASSROOM HOURS 15

EVALUATION (BF-30)

a. Given welding equipment and light gauge metal, the learner will produce 4 beads 5" long. These beads will be straight, uniform and evenly spaced.

b. Test questions are available in text references previously listed.

c. V'TECS, Auto Body Repair, Task No. 18

TASK

BF-31 Welding outside corner joints (no filler rod)

PERFORMANCE OBJECTIVE

Weld an outside corner joint.

INSTRUCTIONAL ACTIVITIES

Provide Information On:

a. Setting up
b. Tacking the plates
c. Welding without rod
d. Testing of bead

Provide Demonstration On:

Demonstrating to the learner how the sparks issuing from the molten metal make a good joint

Provide Practical Application On:

Welding outside corners

INSTRUCTIONAL MATERIALS

A/Vs:

a. Prentice-Hall, "Oxyacetylene Welding" (Filmstrips #5,6)
b. Bergwall, "Welding Explained: Oxyacetylene Fusion" (Filmstrip #5)

Student Manuals:

a. Oklahoma, Auto Body (Unit 5)
b. Georgia, Auto Body Repair, (A-9)

Tools and Equipment:

a. Gloves
b. Goggles
c. Spark lighter
d. Light gauge metal
e. Machine hammer
f. Pliers
g. Light gauge metal

CLASSROOM HOURS 10

EVALUATION (BF-31)

a. Given welding equipment and light gauge metal, the learner will set up and tack plates, weld the joint without filler rod and examine the weld for cracks.

b. Test questions are available in text references previously listed.

c. V'TECS, Auto Body Repair, Task No. 18

TASK

BF-32 Forming beads with filler rod

PERFORMANCE OBJECTIVE

Manipulate the torch and the rod to make a good bead.

INSTRUCTIONAL ACTIVITIES

Provide Information On:

a. Melting of base metal
b. Placement of welding rod
c. Correct angles
d. Dipping action of rod

Provide Practical Application On:

Welding in flat position, horizontal position and vertical position

INSTRUCTIONAL MATERIALS

A/Vs:

a. Prentice-Hall, "Oxy-acetylene Welding" (Filmstrips #5,6)
b. Georgia, "Auto Body Repair" (A-10)

Student Manuals:

a. Oklahoma, Auto Body (Unit 5)
b. Georgia, Auto Body Repair (A 10)

Tools and Equipment:

a. 3/32 steel welding rod
b. 16 or 18 GA steel plates
c. Goggles
d. Gloves
e. Spark lighter
f. Pliers
g. Visegrip pliers

CLASSROOM HOURS

10

EVALUATION (BF-32)

a. Given necessary materials, the learner will produce two 4" x 6" plates of filler rod straight which are evenly spaced and have good penetration.

b. Test questions are available in text references previously listed.

c. V'TECS, Auto Body Repair, Task No. 18

TASK

BF-33 Cutting metal with cutting torch

PERFORMANCE OBJECTIVE

Cut straight lines with cutting torch.

INSTRUCTIONAL ACTIVITIES

Provide Information On:

a. Light and adjustment
b. Starting the cut
c. Speed of travel
d. Cutting sound

Provide Demonstration On:

Cutting with cutting torch

Provide Practical Application On:

Cutting with cutting torch

INSTRUCTIONAL MATERIALS

A/Vs:

a. Prentice Hall, "Oxy-acetylene Welding" (Filmstrip #7)
b. Bergwall, "Oxy-acetylene Cutting Explained" (Filmstrip #1)
c. Georgia, "Auto Body Repair" (Slide set ABR-A15)

Student Manual:

Georgia, Auto Body Repair (A-14, A15)

Tools and Equipment:

a. Cutting torch
b. 1/4 or 3/8 steel plates
c. Goggles
d. Spark lighter
e. Cleaning tip

CLASSROOM HOURS

6

EVALUATION (BF-33)

a. Given welding equipment, the learner will cut 5 straight cuts. The cuts should be 8" in length, smooth and slag free.

b. Test questions are available in text references previously listed.

c. V'TECS, Auto Body Repair, Task No. 18

TASK

BF-34 Piercing, cutting and forming holes

PERFORMANCE OBJECTIVE

Pierce and cut holes in steel plates.

INSTRUCTIONAL ACTIVITIES

Provide Information On:

a. Holding the tip
b. Lowering the tip
c. Cutting the hole
d. Turning up a burr

Provide Demonstration On:

Piercing holes in steel plates

Provide Practical Application On:

Piercing and cutting holes in steel plates

INSTRUCTIONAL MATERIALS

A/Vs:

a. Prentice-Hall, "Oxyacetylene Welding" (Filmstrip #7)
b. Bergwall, "Oxyacetylene Cutting Explained" (Filmstrip #2)
c. Georgia, "Auto Body Repair" (Slide set ABR-A-16)

Student Manuals:

Georgia, Auto Body Repair (A-16)

Tools and Equipment:

a. Goggles
b. Gloves
c. Spark lighter
d. Tip cleaner
e. Soap stone
f. Diamond point chisel
g. Dividers
h. Cutting torch
i. Metal plates 8" x 10"

CLASSROOM HOURS

6

EVALUATION (BF-34)

a. Given welding equipment, the learner will pierce and cut holes that are 2" x 3" in diameter, smooth and slag free.

b. Test questions are available in text references previously listed.

c. V'TECS, Auto Body Repair, Task No. 18

TASK

BF-35 Welding butt joints

PERFORMANCE OBJECTIVE

Weld a butt joint on 16 or 18 gauge steel.

INSTRUCTIONAL ACTIVITIES

Provide Information On:

a. Tacking together
b. Positioning torch and filler rod
c. Bending test for butt weld

Provide Demonstration On:

Performing a butt weld

Provide Practical Application On:

Butt welding

INSTRUCTIONAL MATERIALS

A/Vs:

a. Prentice-Hall, "Oxy-acetylene Welding" (Filmstrip #5)
b. Georgia, "Auto Body Repair" (Slide set ABR-A-10, 11)

Student Manuals:

Georgia, Auto Body Repair (A-11)

Tools and Equipment:

a. Goggles
b. Gloves
c. Spark lighter
d. Tip cleaner
e. 1/8" filler rod
f. Pliers
g. Vise grip pliers
h. Light gauge metal 2" x 6"

CLASSROOM HOURS 10

EVALUATION (BF-35)

a. Given welding equipment, the learner will weld two butt joints on one side of plate. One joint will be checked for good penetration and fusion and one will be checked for appearance. The welds will be made in the flat position, vertical position and horizontal position.

b. Test questions are available in text references previously listed.

TASK

BF-36 Welding a lap joint

PERFORMANCE OBJECTIVE

Weld a lap joint on 16 or 18 gauge steel.

INSTRUCTIONAL ACTIVITIES

Provide Information On:

a. Placing of plates
b. Tack weld (horizontal and vertical only)
c. Proper distribution of heat
d. Position of torch tip

Provide Demonstration On:

Welding lap joints

Provide Practical Application On:

Welding lap joints

INSTRUCTIONAL MATERIALS

A/Vs:

a. Prentice-Hall, "Oxy-acetylene Welding" (Filmstrip #5)
b. Georgia, "Auto Body Repair" (Slide set ABR-A-12)

Student Manuals:

Georgia, Auto Body Repair (A-12)

Tools and Equipment:

a. Goggles
b. Gloves
c. Spark lighter
d. Tip cleaner
e. 1/8" filler rod
f. Pliers
g. Visegrip pliers
h. Machine hammer
i. 18 or 16 gauge metal 2" x 6"

CLASSROOM HOURS

10

EVALUATION (BF-36)

a. Given welding equipment, the learner will weld a lap joint in the flat, horizontal and vertical positions with good surface appearance and complete penetration.

b. Test questions are available in text references previously listed.

c. V'TECS, Auto Body Repair, Task No. 18

TASK

BF-37 Forming beads with brass rod

PERFORMANCE OBJECTIVE

Weld brass beads on light sheet metal.

INSTRUCTIONAL ACTIVITIES

Provide Information On:

a. Cleaning of metal
b. Lighting and adjusting torch
c. Flux
d. Tin metal

Provide Demonstration On:

Brass bead welding

Provide Practical Application On:

Brass bead welding

INSTRUCTIONAL MATERIALS

A/Vs:

a. Prentice-Hall, "Oxy-acetylene Welding" (Filmstrip #5)
b. Georgia, "Auto Body Repair" (Slide set ABR-A-18)

Student Manuals:

a. Oklahoma, *Auto Body* (Unit 5)
b. Georgia, *Auto Body Repair* (A-18)

Tools and Equipment:

a. Goggles
b. Gloves
c. Spark lighter
d. Tip cleaner
e. Brass rod
f. Pliers
g. Flux
h. 16, 18 or 20 gauge metal 2" x 6"

CLASSROOM HOURS 10

EVALUATION (BF-37)

a. Given a welding outfit, light gauge metal, brass rod and flux, the learner will manipulate the flame to make acceptable beads of predetermined size.

b. Test questions are available in text references previously listed.

c. V'TECS, Auto Body Repair, Task No. 18

TASK

BF-38 Brazing a lap joint

PERFORMANCE OBJECTIVE

Weld a lap joint on light sheet metal.

INSTRUCTIONAL ACTIVITIES

Provide Information On:

a. Cleaning of metal
b. Adjusting the torch

Provide Demonstration On:

Demonstrate flame angle to correct the tendency to "over-braze" the top plate.

Provide Practical Application On:

Lap joint welding

INSTRUCTIONAL MATERIALS

A/Vs:

Prentice-Hall, "Oxyacetylene Welding" (Filmstrip #5)

Student Manuals:

a. Oklahoma, Auto Body (Unit 5)
b. Georgia, Auto Body Repair (A-19)

Tools and Equipment:

a. Goggles
b. Gloves
c. Spark lighter
d. Tip cleaner
e. Brass rod
f. Flux
g. Pliers
h. 16 gauge metal 2" x 16"

CLASSROOM HOURS

6

EVALUATION (BF-38)

a. Given welding equipment, metal brass rod and flux, the learner will braze two six inch long lap joints with uniform appearance and good depth of bond. One joint will be checked for appearance and one will be checked by braking for depth of bond.

b. Test questions are available in text references previously listed.

c. V'TECS, Auto Body Repair, Task No. 18

TASK

BF-39 Setting up the arc welder

PERFORMANCE OBJECTIVE

The student will demonstrate the ability to correctly select and set up shielded arc welding apparatus to perform jobs of given specifications.

INSTRUCTIONAL ACTIVITIES

Provide Information On:

a. Shielded arc welding terminology
b. Types and characteristics of arc welding machines and their applications
c. Welding circuits and currents
    (1) AC/DC
    (2) Amps, volts, ohms
    (3) Polarity
    (4) Grounding
d. Accessories and protective clothing
e. Procedures for setting up apparatus
f. Types of electrodes and their uses

Provide Demonstration On:

a. Types of welding machines and accessories
b. Safe and unsafe practices
c. Selecting correct electrodes

Provide Practical Application On:

a. Setting up proper welding circuits
b. Identifying and selecting electrodes

INSTRUCTIONAL MATERIALS

Textbooks:

Althouse, et al.

A/Vs:

Georgia Welding Program
(Slide set B-1, B-3, B-4
B-6, B-9)

Student Manuals:

Georgia Welding Program
(B-1, B-3, B-4, B-6, B-9)

Tools and Equipment:

a. Several types of shielded arc welding machines
b. Arc welding face shield
c. Variety of electrodes
d. Chipping hammer
e. Wire brush
f. Soap stone

CLASSROOM HOURS

20

EVALUATION (BF-39)

a. Given a set of job specifications, the learner will correctly select and set up the proper arc welding apparatus for performing the job, including selection of the proper electrodes and setting up the welding circuit.

b. Georgia, Welding, Instructor Guide, Vol. II, Written Tests B-1, B-2, B-4A and B-5

TASK

BF-40 Demonstrating safe welding practices

PERFORMANCE OBJECTIVE

Demonstrate safe and proper use of electric arc welding apparatus.

INSTRUCTIONAL ACTIVITIES

Provide Information On:

a. Safety regulations and practices
b. What to do in case of an accident
c. Welding and inflammable objects

Provide Demonstration On:

a. Using protective clothing
b. Handling the equipment
c. Using the equipment

Provide Practical Application On:

Have the learner develop and use a safety check list.

INSTRUCTIONAL MATERIALS

Textbooks:

Althouse, et al.

A/Vs:

Georgia Welding Program
(Slide set B-2)

Student Manuals:

Georgia Welding Program
(B-2)

Tools and Equipment:

a. Protective clothing and shield
b. Arc welding machine
c. Welding booth

CLASSROOM HOURS 5

EVALUATION (BF-40)

Given the necessary equipment, the learner will demonstrate safe welding practices, select proper clothing, inspect equipment and identify safety hazards. This must be done with 100% accuracy.

TASK

BF-41 Measuring for welding

PERFORMANCE OBJECTIVE

Demonstrate ability to accurately measure and mark materials within 1/16 inch.

INSTRUCTIONAL ACTIVITIES

Provide Information On:

a. Measurement equipment
   1. Rules (steel rule)
   2. Straight edges
   3. Squares
   4. Soap stone markers
   5. Micrometers (Vernier micrometer)
   6. Bernier calipers
   7. Dial indicators
   8. Telescope and small hole gauges
   9. Use of equipment
   10. Degree of accuracy

b. Measurement techniques

c. English and metric measuring units
   1. Decimals
   2. Fractions
   3. Conversions

Provide Demonstration On:

Types of measurement instruments, their operation and uses

Provide Practical Application On:

Marking a metal for cutting and welding

INSTRUCTIONAL MATERIALS

Student Manuals:

Georgia Welding Program (A-7A)

Tools and Equipment:

a. 1 piece of light gauge sheet metal at least 5" x 7'
b. 1 square
c. 1 piece of soap stone
d. Ruler
e. Straight edges
f. Micrometer
g. Calipers
h. Telescope and small hole gauges

CLASSROOM HOURS	10

EVALUATION (BF-41)

Given proper equipment, the learner will measure a length of metal to the nearest 1/16 inch and mark off 6 parallel lines spaced within 1/16 inch of given dimensions.

TASK

BF-42 Welding butt joints

PERFORMANCE OBJECTIVE

Shield arc weld butt joints in the flat, horizontal, vertical and overhead positions using E6010, E6011, E6012, E6013, E6024, E7018 and E7024 electrodes and different gauge metals.

INSTRUCTIONAL ACTIVITIES

Provide Information On:

a. Types of butt joints
    (1) Square butt
    (2) Square groove
    (3) Single V groove
    (4) Double V groove
    (5) Single bevel groove
    (6) Double bevel groove
    (7) Single U groove
    (8) Double U groove
    (9) Single J groove
    (10) Double J groove
b. Edge preparation
c. Root opening
d. Bead form and sequence
e. Back up bar
f. Welding different gauges of metals

(continued on back)

Provide Demonstration On:

a. Different types of electrodes and their uses with butt joints
b. Examples of good butt joint welds
c. Examples of poor butt joint welds and the causes

Provide Practical Application On:

Welding butt joints in the four positions using different metals and different electrodes

INSTRUCTIONAL MATERIALS

A/Vs:

Georgia Welding Program
(Slide set B-8)

Student Manuals:

Georgia, Welding, Phase B, Units B-8, B-13, B-17, B-19, B-24, B-27, B-30, B-32, B-35 and B-38

Tools and Equipment:

a. Shielded arc welding machine and apparatus
b. Protective clothing
c. Assorted tools
d. Electrodes E6010, E6011, E6012, E6013, E6024, E7018, E7024
e. Steel plates of mild steel, light gauge

CLASSROOM HOURS 40

EVALUATION (BF-42)

a. Given a shielded arc welding machine and related apparatus and tools, the student will weld various types of square and grooved butt joints in the four positions of flat, horizontal, vertical and overhead, using E6010, E6011, E6012, E6013, E6024, E7018 and E7024 electrodes and various gauges of metals. All joints will be free of errors and poor welds.

b. V'TECS, Welding, Task Nos. 18, 20, 21, 22 and 23

INSTRUCTIONAL ACTIVITIES

Provide Information On:

g. Welding in different positions
   (1) Flat
   (2) Horizontal
   (3) Vertical
   (4) Overhead
h. Welding techniques
   (1) Motion of electrode
   (2) Electrode angle
   (3) Direction of travel
   (4) Machine settings
   (5) Arc length
i. Errors and their causes
   (1) Weld sag
   (2) Undercut
   (3) Spattering
   (4) Cold start
   (5) Burn through
j. Using different electrodes
   (1) Machine settings
   (2) Travel speed
   (3) Electrode diameter
   (4) Matching with metals
   (5) Welding with E6010, E6011, E6012, E6013, E6024, E7018, and E7024 electrodes
k. Testing weld joints
l. Characteristics of good joints

TASK

BF-43 Welding flat T-joints

PERFORMANCE OBJECTIVE

Shield arc weld T-joints in the flat position using E6010, E6011, E6013, E7018 and E7024 electrodes.

INSTRUCTIONAL ACTIVITIES

Provide Information On:

a. Terminology
    (1) Fillet joint
    (2) T-fillet joint
    (3) Root beads
    (4) Weave beads
    (5) Multiple passes
    (6) Keyhold effect
b. Welding techniques
    (1) Machine setting
    (2) Electrode angle
    (3) Electrode motion
    (4) Arc length
    (5) Speed of travel
    (6) Direction of travel

(continued on back)

Provide Demonstration On:

a. Examples of properly welded joints
b. Examples of poor welding and the causes
c. Carrying the puddle

Provide Practical Application On:

Welding T-joints in the flat welding position using various metals and various electrodes

INSTRUCTIONAL MATERIALS

Student Manuals:

Georgia, Welding, Phase B, Units B-11, B-15, B-21, B-22, B-26, B-31 and B-33

Tools and Equipment:

a. AC/DC welding machine and apparatus
b. Protective clothing
c. Assorted tools
d. Electrodes E6010, E6011, E6013, E7018 and E7024
e. Various gages of mild steel plate

CLASSROOM HOURS 20

EVALUATION (BF-43)

a. Given an AC/DC shielded arc welding machine, related apparatus and tools, the student will weld T-fillet joints in the flat position using various gauges of mild steel plate and a variety of different electrodes. All welds will exhibit the characteristics of a good weld and will be free of errors.

b. V-TECS, Welding, Task No. 17

INSTRUCTIONAL ACTIVITIES

Provide Information On:

c. Selection of electrodes
d. Low hydrogen electrodes
e. Bead type and distribution
f. Welding in different positions
g. Errors and their causes

TASK

BF-44 Welding lap joints

PERFORMANCE OBJECTIVE

Arc weld lap joints in the flat, horizontal, vertical and overhead positions using E6010, E6011, E6012, E6013 electrodes and different gauge metals.

INSTRUCTIONAL ACTIVITIES

Provide Information On:

a. Lap joints
   (1) Edge preparation
   (2) Positioning of metals
   (3) Leg dimensions
b. Bead form for lap joints
c. Method for welding various gages of metals
   (1) Electrode selection
   (2) Welding together two different gauges of metals
   (3) Welding together the same gauge of metal
   (4) Where to direct arc
d. Welding positions
   (1) Flat
   (2) Horizontal

(continued on back)

Provide Demonstration On:

a. Examples of good lap joint welds
b. Errors and their causes
c. Proper welding technique

Provide Practical Application On:

a. Examples of good lap joint welds
b. Errors and their causes
c. Proper welding technique

INSTRUCTIONAL MATERIALS

A/Vs:

Georgia, Welding Program
(Slide set B-10)

Student Manuals:

Georgia, Welding Program Phase B (B-10, B-14, B-20, B-25, B-36, B-39)

Tools and Equipment:

a. Shield arc welding machine
b. Protective clothing
c. Cleaning tools
d. Pliers and vicegrips
e. Electrodes E6010, E6011, E6012, E6013, E6024, E7024, E7018
f. Light and medium gauge metal

CLASSROOM HOURS

20

EVALUATION (BF-44)

a. Given sheilded arc welding equipment and other proper materials:
  - (1) Weld lap joints
    - (a) Weld in the four welding positions.
    - (b) Weld the joint using two different gauges of metal to weld together.
    - (c) Weld different gauges of metal, but weld the same gauge together.
  - (2) Joint should have
    - (a) Proper penetration and fusion
    - (b) Complete fill
    - (c) Equal leg dimensions
    - (d) Proper beads
    - (e) Clean, neat appearance

b. V'TECS, Welding, Task No. 24

INSTRUCTIONAL ACTIVITIES

Provide Information On:

  - (3) Vertical
  - (4) Overhead

e. Welding method for the four positions
  - (1) Motion of electrode
  - (2) Torch angle and motion
  - (3) Machine settings
  - (4) Travel speed

f. Welding with different electrodes
  - (1) Method of selection and identification
  - (2) Machine settings
  - (3) Current
  - (4) Travel speed
  - (5) Types of metals used with electrodes
  - (6) Electrode widths

g. Errors
  - (1) Weld sag
  - (2) Undercut
  - (3) Burn through

h. Testing weld joints
  - (1) Guided bend testing
  - (2) Acid etching
  - (3) Destructive tests
  - (4) X-ray tests
  - (5) Visual tests

TASK

BF-45 Checking frame alignment

PERFORMANCE OBJECTIVE

Check alignment in both the separate frame and unitized body.

INSTRUCTIONAL ACTIVITIES

Provide Information On:

a. Frame dimensions
b. Datum line
c. Center plane
d. Centering gauges
e. Tram gauge

Provide Demonstration On:

a. Centering gauges
b. Tram gauge

Provide Practical Application On:

a. Checking alignment separate frame and body
b. Checking alignment unitized body

INSTRUCTIONAL MATERIALS

Student Manuals:

Georgia, Auto Body Repair (ABR-401)

Tools and Equipment:

a. Centering gauges
b. Tram gauge
c. Tape measure

CLASSROOM HOURS

30

EVALUATION (BF-45)

a. Given a vehicle with frame damage, the learner will determine the type of damage and how to correct it.

b. Test questions are available in text references previously listed.

c. V'TECS, Auto Body Repair, Task No. 11

TASK

BF-46 Aligning body and frame

PERFORMANCE OBJECTIVE

Straighten frames and unitized bodies.

INSTRUCTIONAL ACTIVITIES

Provide Information On:

a. Make hook-ups
b. Make pulls
c. Check progress

Provide Demonstration On:

Checking progress

Provide Practical Application On:

a. Straighten a frame
b. Straighten unitized body

INSTRUCTIONAL MATERIALS

A/Vs:

Georgia, "Auto Body Repair"
(Slide set ABR-401, 402)

Student Manuals:

a. Oklahoma, Auto Body
(Unit 3)
b. Georgia, Auto Body Repair
(ABR-402, 403, 404)

Tools and Equipment:

a. Hand tools
b. Frame machine
c. Frame gauges

CLASSROOM HOURS 30

EVALUATION (BF-46)

a. Given a vehicle, the learner will straighten a body and frame type and a unitized body type. The frames will be straightened according to manufacturer's specifications.

b. Test questions are availabe in text references previously listed.

c. V'TECS, Auto Body Repair, Task No. 9

TASK

BF-47 Bumping and dinging techniques

PERFORMANCE OBJECTIVE

Strike an object squarely and use wrist motion.

INSTRUCTIONAL ACTIVITIES

Provide Information On:

a. Skills of a metal bumper
b. Skills of a metal dingman
c. Use of round face pick hammer
d. Wrist motion
e. Finger motion

Provide Demonstration On:

Demonstrate to the learner all basic hand tools used in auto body repair.

Provide Practical Application On:

Have learner drive 3/4" lath nails into a 2" x 4" board to determine if hitting object squarely and how to adjust.

INSTRUCTIONAL MATERIALS

Textbooks:

Spicer

A/Vs:

a. Georgia, "Auto Body Repair" (Slide set 05)
b. Prentice-Hall, "Auto-body Repair: Metal Work" (Filmstrip #1)
c. Bergwall, "Auto Body Repair" (Filmstrip #2)
d. Bergwall, "Auto Body Tools Explained" (Filmstrip)

Student Manuals:

Oklahoma, Auto Body (Unit 6)

Tools and Equipment:

a. Round face pick hammer
b. 3/4" lath nails
c. 2" x 4" board

CLASSROOM HOURS

13

EVALUATION (BF-47)

a. Given a 2" x 4" board, a round face pick hammer and 3/4" lath nails, the learner will drive the nails into the board leaving a mark showing it was hit squarely.

b. Test questions are available in text references previously listed.

TASK

BF-48 Correcting metal damage with a hammer and dolly block

PERFORMANCE OBJECTIVE

Correct metal damage with hammer and dolly block.

INSTRUCTIONAL ACTIVITIES

Provide Information On:

a. Force of hammer blows
b. Direction of blows
c. Rebound of dolly

Provide Demonstration On:

Holding the dolly

Provide Practical Application On:

Correcting metal damage with a hammer and dolly

INSTRUCTIONAL MATERIALS

Textbooks:

Spicer

A/Vs:

a. Georgia, "Auto Body Repair" (Slide set 1)
b. Prentice-Hall, "Autobody Repair: Metal Work" (Filmstrip #2)
c. Bergwall, "Auto Body Repair" (Filmstrip #1, 2)

Student Manuals:

a. Oklahoma, Auto Body (Unit 6)
b. Georgia, Auto Body Repair (ABR-1)

Tools and Equipment:

a. Long pick hammer
b. All-purpose dolly
c. Practice project

CLASSROOM HOURS 26

EVALUATION (BF-48)

a. Given a practice project, the learner will remove a dent so that the metal is returned to its original contour. No imperfections should be felt with the hand.

b. Test questions are available in text references previously listed.

TASK

BF-49 Removing paint, smoothing metal and finding low spots

PERFORMANCE OBJECTIVE

Remove paint, smooth metal and find low spots using the Vixen file.

INSTRUCTIONAL ACTIVITIES

Provide Information On:

a. Body file and holder
b. Adjustable file
c. Vixen file blades

Provide Demonstration On:

Use of the adjustable file

Provide Practical Application On:

Locating metal low spots

INSTRUCTIONAL MATERIALS

Textbooks:

Spicer

A/Vs:

a. Georgia, "Auto Body Repair" (Slide set ABR 5, 6)
b. Prentice-Hall, "Autobody Repair: Refinishing" (Filmstrip #1)

Student Manuals:

Oklahoma, Auto Body (Unit 7)

Tools and Equipment:

a. Pick hammer
b. All purpose dolly
c. Adjustable file and holder

CLASSROOM HOURS

5

EVALUATION (BF-49)

a. Given a practice project, the learner will remove a dent, remove paint, locate low spots and restore metal to its original contour. No imperfections should be felt with the hand.

b. Test questions are available in text references previously listed.

c. V'TECS, Auto Body Repair, Task No. 10

TASK

BF-50 Removing a minor dent using a long pick hammer, all-purpose dolly and adjustable file

PERFORMANCE OBJECTIVE

Remove a minor dent using a long pick hammer, all-purpose dolly and adjustable file.

INSTRUCTIONAL ACTIVITIES

Provide Information On:

a. Light hammer blows
b. Dolly blocks

Provide Demonstration On:

Using dolly block from the underside

Provide Practical Application On:

Remove a minor dent.

INSTRUCTIONAL MATERIALS

Textbooks:

a. MacPherson
b. Spicer

A/Vs:

a. Georgia, "Auto Body Repair" (Slide Set ABR-1, ABR-14)
b. Prentice-Hall, "Autobody Repair: Metal Work" (Filmstrip #2)
c. Bergwall, "Auto Body Repair" (Filmstrip #1, 2)

Student Manuals:

a. Oklahoma, *Auto Body* (Unit 6)
b. Georgia, *Auto Body Repair* (ABR-1)

Tools and Equipment:

a. Long pick hammer
b. All-purpose dolly
c. Adjustable file

CLASSROOM HOURS 15

EVALUATION (BF-50)

a. Given a vehicle, a long pick hammer and an all-purpose dolly, the learner will remove a dent. No imperfections should be felt with the hand.

b. Test questions are available in text references previously listed.

c. V'TECS, Auto Body Repair, Task No. 15

TASK

BF-51 Removing a minor dent or gouge using a drill motor, pull rod and body file

PERFORMANCE OBJECTIVE

Remove a minor dent or gouge using a drill motor, pull rods and body file.

INSTRUCTIONAL ACTIVITIES

Provide Information On:

a. Drilling
b. Pull
c. File
d. Fill

Provide Demonstration On:

Use of pull rods and slide hammer

Provide Practical Application On:

Removing dents using pull rods or a slide hammer

INSTRUCTIONAL MATERIALS

Textbooks:

a. MacPherson
b. Rhone

A/Vs:

a. Georgia, "Auto Body Repair" (Slide set ABR 3, 4, 10)
b. Prentice-Hall, "Auto Body Repair: Metal Work" (Filmstrip #2)
c. Bergwall, "Auto Body Repair" (Filmstrip #1, 2)

Student Manuals:

Georgia, *Auto Body Repair* (ABR-2)

Tools and Equipment:

a. Set of pull rods
b. Drill motor and bit
c. Body file
d. Solder acid core
e. Soldering iron

CLASSROOM HOURS

15

EVALUATION (BF-51)

Given a vehicle, a drill meter, pull rods and a file, the learner will restore a minor dent. No imperfections should be felt with the hand.

TASK

BF-52 Filling 1/8" holes or smaller with soldering iron and solder

PERFORMANCE OBJECTIVE

Fill 1/8" holes or smaller with soldering iron and solder.

INSTRUCTIONAL ACTIVITIES

Provide Information On:

a. Cleaning
b. Solder flux
c. Soldering tips
d. Acid core solder
e. Bond

Provide Demonstration On:

Soldering techniques

Provide Practical Application On:

Filling body holes

INSTRUCTIONAL MATERIALS

Textbooks:

MacPherson

A/Vs:

a. Georgia, "Auto Body Repair" (Slide set ABR 5, 6, 7)
b. Prentice-Hall, "Automotive Sheet Metal Repair" (Filmstrips 3, 4, 5)

Student Manuals:

Georgia, Auto Body Repair (ABR-3)

CLASSROOM HOURS

13

EVALUATION (BF-52)

Given a practice panel, the learner will fill holes with solder. The finished panel must be returned to its original contour and be smooth to the touch.

TASK

BF-53 Repairing a hole or rust damage using a fiberglass patch

PERFORMANCE OBJECTIVE

Repair a hole or rust damage using a fiberglass patch.

INSTRUCTIONAL ACTIVITIES

Provide Information On:

a. Cleaning and sanding
b. Depressing the damaged area
c. Cutting fiberglass matting
d. Mixing fiberglass resin
e. Applying the matting

Provide Demonstration On:

a. Mixing fiberglass
b. Spreading fiberglass

Provide Practical Application On:

Repairing rust with fiberglass

INSTRUCTIONAL MATERIALS

Textbooks:

a. MacPherson
b. Rhone

A/Vs:

a. Georgia, "Auto Body Repair" (Slide set, ABR-32)
b. Prentice-Hall, "Automotive Sheet Metal Repair" (Filmstrip #2)

Student Manuals:

a. Oklahoma, *Auto Body* (Unit 6)
b. Georgia, *Auto Body Repair* (ABR-15)

Tools and Equipment:

a. Grinder
b. 16 grit disc
c. Safety glasses
d. Dusk mask
e. Rubber gloves
f. Fiberglass repair kit

CLASSROOM HOURS 10

EVALUATION (BF-53)

a. Given a vehicle with a rusted out panel, the learner will remove rust, mix resin, apply fiberglass matting, file and sand to its original contour. The completed job must meet industry requirements.

b. Test questions are available in text references previously listed.

TASK

BF-54 Removing rusted out area of a panel and replacing it with a new sheet metal patch

PERFORMANCE OBJECTIVE

Remove rusted out area of a panel and replace it with new sheet metal patch.

INSTRUCTIONAL ACTIVITIES

Provide Information On:

a. Using metal snips
b. Tack brazing
c. Using files and leveling tools on body solder
d. Cleaning the repaired area

Provide Demonstration On:

How to make a templet of the cut-out area

Provide Practical Application On:

Repairing rust outs using sheet metal patches

INSTRUCTIONAL MATERIALS

Textbooks:

Rhone

A/Vs:

Georgia,"Auto Body Repair" (Slide set ABR-32, 25, 26, 27)

Student Manuals:

a. Oklahoma, Auto Body (Unit 6)
b. Georgia, Auto Body Repair (ABR-11, ABR-12)

Tools and Equipment:

a. Safety glasses
b. Gloves
c. Metal snips
d. New or used sheet metal

(Continued on back)

CLASSROOM HOURS 20

EVALUATION (BF-54)

a. Given a vehicle and tools, the learner will replace a rusted area with scrap metal, braze-patch or solder patch. The replaced area must be free of nubs and sand burs.

b. Test questions are available in text reference previously listed.

INSTRUCTIONAL MATERIALS

Tools and Equipment:

e. Oxicetelene equipment
f. Coated 1/8" brass rod
g. Body lead
h. Acid core solder
i. Metal cleaner
j. Metal conditioner
k. Rags
l. Vixen file
m. Soldering paddles
n. Fire extinguisher

TASK

BF-55 Repairing damaged area using lead to fill imperfections

PERFORMANCE OBJECTIVE

Repair damaged area using lead to fill imperfections.

INSTRUCTIONAL ACTIVITIES

Provide Information On:

a. Advantages of solder
b. Disadvantages of solder
c. Types of solder
d. Using body solder
e. Using the heating torch fitting

Provide Demonstration On:

How to apply the lead to the surface and paddle the lead

INSTRUCTIONAL MATERIALS

Textbooks:

Rhone

A/Vs:

Prentice-Hall, "Autobody Repair: Metal Work" (Filmstrip #4)

Student Manuals:

Oklahoma, Auto Body (Unit 6)

Tools and Equipment:

a. Safety glasses
b. Gloves
c. Fire extinguisher
d. Lacquer thinner
e. Solder sticks 80-20
f. 16 grit disc
g. Acid core solder
h. Clean rags
i. D.S. sander
j. Body file
k. Grinder
l. Oxyacetylene torch

CLASSROOM HOURS 15

EVALUATION (BF-55)

a. Given a vehicle with panel damaged, the learner will straighten the panel to where little imperfections remain, apply lead and file to original dimensions and contours.

b. Test questions are available in text references previously listed.

c. V'TECS, Auto Body Repair, Task No. 14

TASK

BF-56 Mixing and applying plastic body filler

PERFORMANCE OBJECTIVE

Mix and apply plastic body filler.

INSTRUCTIONAL ACTIVITIES

Provide Information On:

a. Polyester plastic
b. Metal plastic
c. How to use fillers
d. Surface preparation
e. Repairing plastic filler

Provide Demonstration On:

Mixing and applying plastic filler

Provide Practical Application On:

Repairing body damage using plastic body filler

INSTRUCTIONAL MATERIALS

Textbooks:

a. Spicer
b. Rhone

A/Vs:

a. Georgia, "Auto Body Repair" (Slide set ABR-29, 30, 31)
b. Prentice-Hall, "Automotive Sheet Metal Repairs" (Filmstrip #2)
c. Bergwall, "Auto Body Repair" (Filmstrip #3)

Student Manuals:

a. Oklahoma, Auto Body (Unit 6)
b. Georgia, Auto Body Repair (ABR-13)

Tools and Equipment:

a. Body filler
b. Safety glasses
c. Dust mask
d. Grinder
e. Straight line sander
f. D. A. sander
g. Paint paddle
h. Spreaders

CLASSROOM HOURS

5

EVALUATION (BF-56)

a. Given a vehicle with multiple damage, the learner will straighten the panel to within 1/4" of original contours and finish with plastic filler. The completed panel must be the original dimensions and contours.

b. Test questions are available in text references previously listed.

c. V'TECS, Auto Body Repair, Task No. 13

TASK

BF-57 Repairing a tear in a panel

PERFORMANCE OBJECTIVE

Repair a tear in a panel.

INSTRUCTIONAL ACTIVITIES

Provide Information On:

a. Roughing out tear
b. Heat shield material

Provide Demonstration On:

Controlling heat warping

Provide Practical Application On:

Repairing metal tears

INSTRUCTIONAL MATERIALS

A/Vs:

Georgia, "Auto Body Repair" (Slide set ABR-23, 24)

Student Manuals:

a. Oklahoma, Auto Body (Unit 6)
b. Georgia, Auto Body Repair (ABR-10)

Tools and Equipment:

a. Safety glasses
b. Welding goggles
c. Grinder
d. Heat shield material
e. Vacuum recovery
f. 1/16" welding rod
g. Oxyacetylene equipment

CLASSROOM HOURS

5

EVALUATION (BF-57)

Given a vehicle with a tear in the panel, the learner will repair the tear and return damaged area to its original contour.

TASK

BF-58 Removing partial panel and welding a patch

PERFORMANCE OBJECTIVE

Remove partial panel and weld a patch.

INSTRUCTIONAL ACTIVITIES

Provide Information On:

a. Marking of new panel
b. Cutting patch
c. Using flanging tool
d. Brazing in patch

Provide Demonstration On:

How to cut out flange spot welds

Provide Practical Application On:

Removing a partial panel and welding in a patch

INSTRUCTIONAL MATERIALS

Textbooks:

Rhone

Student Manuals:

Oklahoma, Auto Body (Units 5, 6)

Tools and Equipment:

a. Safety glasses
b. Gloves
c. Oxyacetylene equipment
d. Grinder
e. 16 Grit disc
f. Flanging tool
g. Panel cutter

CLASSROOM HOURS 15

EVALUATION (BF-58)

a. Given a vehicle with partial panel to be replaced, the learner will cut out section of damaged panel, replace it with used or new patch metal and restore it to the original contour.

b. Test questions are available in text references previously listed.

c. V'TECS, Auto Body Repair, Task No. 4

TASK

BF-59 Repairing broken fiberglass with fiberglass repair kit

PERFORMANCE OBJECTIVE

Repair broken fiberglass with fiberglass repair kit.

INSTRUCTIONAL ACTIVITIES

Provide Information On:

a. Repairing holes in fiberglass
b. Bevel edges
c. Repair from inside
d. Repair from outside
e. Safety precautions

Provide Demonstration On:

Fiberglass repair techniques

Provide Practical Application On:

Repairing fiberglass sections

INSTRUCTIONAL MATERIALS

Textbooks:

a. Spicer
b. Rhone

A/Vs:

a. Prentice-Hall, "Automotive Sheet Metal Repair" (Filmstrip #2)
b. Georgia, "Auto Body Repair" (Slide set ABR-32)

Student Manuals:

a. Oklahoma, Auto Body (Unit 6)
b. Georgia, Auto Body Repair (ABR-15)

Tools and Equipment:

a. Safety glasses
b. Rubber gloves
c. Grinder
d. 50 grit disc
e. Fiberglass repair kit

CLASSROOM HOURS 46

EVALUATION (BF-59)

a. Given a fiberglass panel needing multiple type repairs, the learner will repair scratches, pits, cracks and fractured panels and restore them to their original contour.

b. Test questions are available in text references previously listed.

c. V'TECS, Auto Body Repair, Task No. 8

TASK

PR-01 Locating paint code and demonstrating how much and what type of material to order for the repair

PERFORMANCE OBJECTIVE

Locate paint code and determine how much and what type of material to order for the repair.

INSTRUCTIONAL ACTIVITIES

Provide Information On:

a. Ordering of material
b. Color and code plates
c. Types of repair

Provide Demonstration On:

a. Looking up paint number
b. Where and how to order material

Provide Practical Application On:

Determining materials

INSTRUCTIONAL MATERIALS

Textbook:

Hobson

CLASSROOM HOURS 10

EVALUATION (PR-01)

a. Given three vehicles, the learner will determine and locate paint coding numbers, determine the type of finish each vehicle requires and estimate the amount of material necessary to make repairs.

b. Test questions are available in text references previously listed.

TASK

PR-02 Surface conditioning

PERFORMANCE OBJECTIVE

Washing and cleaning vehicle, removing old finish and treating bare metal for good bond.

INSTRUCTIONAL ACTIVITIES

Provide Information On:

a. Washing the vehicle
b. Cleaning with chemical cleaner
c. Stripping the old finish
d. Metal conditioning
e. Etching bare metal
f. Cleaning up with chemical cleaner

Provide Demonstration On:

a. Metal conditioning
b. Etching
c. Cleaning with chemical cleaner

Provide Practical Application On:

Preparing surface for painting

INSTRUCTIONAL MATERIALS

Textbooks:

a. Hobson
b. Ditzler

A/Vs:

Georgia, "Auto Body Repair" (Slide set ABR-307)

Student Manuals:

a. Oklahoma, Auto Body (Unit 7)
b. Georgia, Auto Body Repair, (ABR-307)

Tools and Equipment:

a. Grinder
b. Illgr disc or
c. D.A. sander
d. 80G disc

(Continued on back)

CLASSROOM HOURS

EVALUATION (PR-02)

a. Given an old deck lid, hood or door, the learner will grind off the old surface, treat metal and apply an enamel sealer. This process must be done according to the manufacturer's specifications.

b. Test questions are available in text references previously listed.

c. V'TECS, Auto Body Repair, Task Nos. 27, 29, 30

INSTRUCTIONAL MATERIALS

e. Etching
f. Chemical cleaner
g. Metal conditioner

TASK (PR-03)

Masking a vehicle for spot, panel or overall painting

PERFORMANCE OBJECTIVE

Mask a vehicle for spot, panel or overall painting.

INSTRUCTIONAL ACTIVITIES

Provide Information On:

a. Masking tape
b. Precautions while masking
c. Masking trim and hardware

Provide Demonstration On:

a. Masking windshields
b. Masking a panel
c. Masking windows
d. Masking upholstery

Provide Practical Application On:

a. Masking windshield
b. Masking a panel
c. Masking windows
d. Masking wheels
e. Masking door handles

INSTRUCTIONAL MATERIALS

Textbooks:

a. Hobson
b. Taite
c. Rhone
d. 3M Company

A/Vs:

a. Georgia, "Auto Body Repair" (Slide set ABR-303)
b. Prentice-Hall, "Autobody Repair: Refinishing" (Filmstrip #3)

Student Manuals:

a. Oklahoma, Auto Body (Unit 7)
b. Georgia, Auto Body Repair (ABR-303)

Tools and Equipment:

a. Paper machine
b. Masking tape

CLASSROOM HOURS 26

EVALUATION (PR-03)

a. Given a vehicle, the learner will mask it so that paint does not fall on tires, glass or other surfaces not being painted.

b. Test questions are available in text references previously listed.

c. V'TECS, Auto Body Repair, Task No. 28

TASK

PR-04 Adjusting gun and air pressure to spray enamel sealer and primer surfaces and apply to bare metal

PERFORMANCE OBJECTIVE

Adjust gun and air pressures to spray enamel, sealer and primer surfaces and apply to metal.

INSTRUCTIONAL ACTIVITIES

Provide Information On:

a. Position for using the spray gun
b. Flash time
c. Overlap spray patterns

Provide Demonstration On:

Spraying with the spray gun

Provide Practical Application On:

Spraying sealer and primer

INSTRUCTIONAL MATERIALS

Textbooks:

a. Hobson
b. Ditzler

A/Vs:

a. Georgia, "Auto Body Repair" (Slide set ABR-301A, 302)
b. Prentice-Hall, "Auto body Repair: Refinishing" (Filmstrip #2)

Student Manuals:

a. Oklahoma, Auto Body (Unit 7)
b. Georgia, Auto Body Repair (ABR-301-A, 302)

Tools and Equipment:

a. Paint gun
b. Enamel sealer
c. Enamel reducer
d. Laquer thinner
e. Cleaning brush

CLASSROOM HOURS 10

EVALUATION (PR-04)

a. Given a spray gun and material, the learner will adjust air pressure, fluid valve and air valve and spray paint an enamel sealer without runs or sags.

b. Test questions are available in text references previously listed.

c. V'TECS, Auto Body Repair, Task No. 28

TASK

PR-05 Featheredging all broken areas of finish on vehicle and applying sealer

PERFORMANCE OBJECTIVE

Featheredge all broken areas of finish on a vehicle and apply sealer.

INSTRUCTIONAL ACTIVITIES

Provide Information On:

a. Featheredging
b. Featheredging chemically
c. Sandscratch swelling
d. Applying enamel sealer to bare metal

Provide Demonstration On:

a. Demonstrate the use of D.A. sander, jitterbug, sanding block and featheredging by fingers.
b. Demonstrate how to fold sand paper.
c. View slide sets ABR-102, A-4, and A-42.

Provide Practical Application On:

Featheredging surfaces

INSTRUCTIONAL MATERIALS

Textbooks:

a. Hobson
b. Ditzler

Student Manuals:

Oklahoma, Auto Body
(Unit 7)

Tools and Equipment:

a. Safety glasses
b. D.A. sander
c. Jitterbug
d. Sanding block
e. Sanding pad
f. 180 grit sandpaper
g. 240 grit sandpaper
h. Enamel sealer
i. Enamel reducer
j. Lacquer thinner
k. Paint gun

CLASSROOM HOURS 15

EVALUATION (PR-05)

a. Given a vehicle with broken areas of paint, the learner will featheredge all breaks in the finish to a condition where all layers are tapered back at least 1/8".

b. Test questions are available in text references previously listed.

TASK

PR-06 Applying primer surfacer and hand-sanding a vehicle, wet or dry

PERFORMANCE OBJECTIVE

Apply primer surfacer and hand sand a vehicle, wet or dry.

INSTRUCTIONAL ACTIVITIES

Provide Information On:

a. Sanding
b. Sandpaper
c. Handsanding
d. Dry sanding
e. Wet sanding
f. Types of sanding

Provide Demonstration On:

Demonstrate correct gun setting, fan and fluid, correct spray pattern, wetness and number of coats.

Provide Practical Application On:

Applying primer and hand sanding a vehicle

INSTRUCTIONAL MATERIALS

Textbooks:

a. Rhone
b. R and M
c. Hobson

A/Vs:

Georgia, "Auto Body Repair" (Slide set ABR-302, 205A)

Student Manuals:

a. Oklahoma, Auto Body (Unit 7)
b. Georgia, Auto Body Repair (ABR-302, 305A)

Tools and Equipment:

a. Primer gun
b. Primer surfacer
c. Lacquer thinner
d. Sanding block

(Continued on back)

CLASSROOM HOURS

10

EVALUATION (PR-06)

a. Given a vehicle for priming and sanding, the learner will prime all repair spots, water and dry sand to a condition where there are no flaws in the surface, thereby rendering the surface ready for the top coat.

b. Test questions are available in text references previously listed.

c. V'TECS, Auto Body Repair, Task No. 28

INSTRUCTIONAL MATERIALS

e. Sanding pad
f. Sandpaper 320 and 400 grit
g. Water hose
h. Water and bucket
i. Rags
j. Paint paddle
k. Squeegies

TASK

PR-07 Spot painting a solid color

PERFORMANCE OBJECTIVE

Spot paint a solid color.

INSTRUCTIONAL ACTIVITIES

Provide Information On:

a. Holding spray gun
b. Pressure
c. Spray pattern
d. Blend coat

Provide Demonstration On:

a. Holding spray gun
b. Spray pattern
c. Blending of mist coat

Provide Practical Application On:

a. Spraying of panel
b. Adjusting the gun
c. Blending of mist coat

INSTRUCTIONAL MATERIALS

Textbooks:

a. Hobson
b. Ditzler

A/Vs:

a. Georgia, "Auto Body Repair" (Slide set ABR-304A, 304, 304-1)
b. Prentice-Hall, "Autobody Repair: Refinishing" (Filmstrip #4, 5)

Student Manuals:

a. Oklahoma, Auto Body (Unit 7)
b. Georgia, Auto Body Repair (ABR-304, 304A)

Tools and Equipment:

a. Spray gun
b. Paint mask
c. Paint materials

CLASSROOM HOURS 12

EVALUATION (PR-07)

a. Given a vehicle, the learner will spot paint a panel so the new paint completely blends with the old finish.

b. Test questions are available in text references previously listed.

c. V'TECS, Auto Body Repair, Task No. 30

TASK

PR-08 Painting a panel with a solid color

PERFORMANCE OBJECTIVE

Paint a panel with a solid color.

INSTRUCTIONAL ACTIVITIES

Provide Information On:

a. Air pressure
b. Flash time

Provide Demonstration On:

a. Holding spray gun
b. Spray pattern

Provide Practical Application On:

Spraying of solid colors

INSTRUCTIONAL MATERIALS

Textbooks:

Hobson

A/Vs:

a. Georgia, "Auto Body Repair" (Slide set ABR-305, 313)
b. Prentice-Hall, "Autobody Repair: Refinishing" (Filmstrip #4)

Student Manuals:

a. Oklahoma, Auto Body (Unit 7)
b. Georgia, Auto Body Repair (ABR-305)

Tools and Equipment:

a. Paint gun
b. Paint mask
c. Paint material

CLASSROOM HOURS	18

EVALUATION (PR-08)

a. Given a vehicle, the learner will paint a panel a solid color. The finish must exactly match the color and shine of the vehicle.

b. Test questions are available in text references previously listed.

c. V'TECS, Auto Body Repair, Task No. 32

TASK

PR-09 Painting a vehicle with alkyld and acrylic enamel or lacquer

PERFORMANCE OBJECTIVE

Paint a vehicle with alkyld and acrylic enamel.

INSTRUCTIONAL ACTIVITIES

Provide Information On:

a. Selecting materials
b. Pre-paint preparations
c. Items needed in paint booth
d. Clean up operations

Provide Demonstration On:

How to paint vehicle

Provide Practical Application On:

Paint a vehicle.

INSTRUCTIONAL MATERIALS

Textbooks:

Hobson

A/Vs:

Georgia, "Auto Body Repair" (Slide Set ABR-304A, 308, 309)

Student Manuals:

a. Oklahoma, Auto Body (Unit 7)
b. Georgia, Auto Body Repair (ABR-306A, 308 309)
c. Ford, "Acrylid Lacquer Repairs on Enamel Finishes" (4651-003)

Tools and Equipment:

a. Paint gun
b. Respirator
c. Material to paint vehicle

CLASSROOM HOURS

30

EVALUATION (PR-09)

a. Given a vehicle in need of painting, the learner will paint a vehicle and attain a quality finish.

b. Test questions are available in text references previously listed.

c. V'TECS, Auto Body Repair, Task Nos. 30, 32

TASK

PR-10 Painting a panel and spot painting a panel with metallic colors

PERFORMANCE OBJECTIVE

Paint a panel and spot paint a panel with metallic colors.

INSTRUCTIONAL ACTIVITIES

Provide Information On:

a. What is a metallic finish?
b. Color effect
c. Stirring of paint
d. Blend of spot repair
e. Test panel

Provide Demonstration On:

a. Stirring of the paint
b. Blending of spot repair
c. Making a test panel

Provide Practical Application On:

Painting a spot and panel with metallic colors

INSTRUCTIONAL MATERIALS

Textbooks:

Hobson

A/Vs:

a. Georgia, "Auto Body Repair" (Slide set ABR-310)
b. Prentice-Hall, "Autobody Repair: Refinishing" (Filmstrip #4)

Student Manuals:

a. Oklahoma, Auto Body (Unit 7)
b. Georgia, Auto Body Repair (ABR-310)
c. Ford, Color Matching Metallics (4651-002)

Tools and Equipment:

a. Paint gun
b. Paint mask
c. Material to paint car
d. Buffer

CLASSROOM HOURS

22

EVALUATION (PR-10)

a. Given a vehicle, the learner will spot and panel repair with metallic paint. The repair must match the surrounding area in color and blend.

b. Test questions are available in text references previously listed.

c. V'TECS, Auto Body Repair, Task No. 32

TASK

PR-11 Compounding and polishing by hand and with a buffer

PERFORMANCE OBJECTIVE

Compound and polish by hand and with a buffer.

INSTRUCTIONAL ACTIVITIES

Provide Information On:

a. Rubbing compounds
b. Polishing compounds
c. Polishers
d. Compounding pads
e. Polishing bonnets

Provide Demonstration On:

a. Using polisher
b. Applying compounds
c. Masking of styling lines

Provide Practical Application On:

a. Compounding with polisher
b. Compounding by hand

INSTRUCTIONAL MATERIALS

Textbooks:

Hobson

A/Vs:

a. Georgia, "Auto Body Repair" (Slide set ABR-312)
b. Prentice-Hall, "Auto body Repair: Refinishing" (Filmstrip #6)

Student Manuals:

Georgia, Auto Body Repair (ABR-312)

Tools and Equipment:

a. Polisher
b. Bonnet
c. Polishing pad
d. Compound

CLASSROOM HOURS

20

EVALUATION (PR-11)

a. Given a vehicle, the learner will compound and polish it to restore luster. There should be no burned spots or buff throughs on the vehicle when the task is completed.

b. Test questions are available in text references previously listed.

TASK

PR-12 Cleaning and maintaining paint spray guns

PERFORMANCE OBJECTIVE

Clean and maintain paint spray guns.

INSTRUCTIONAL ACTIVITIES

Provide Information On:

a. Cleaning liquid
b. Putting gun up

Provide Demonstration On:

How to clean paint gun

Provide Practical Application On:

Cleaning paint gun

INSTRUCTIONAL MATERIALS

Textbooks:

Hobson

A/Vs:

a. Georgia, "Auto Body Repair" (Slide set ABR-301)
b. Prentice-Hall, "Autobody Repair: Refinishing" (Filmstrip #2)

Student Manuals:

a. Oklahoma, Auto Body (Unit 7)
b. Georgia, Auto Body Repair (ABR-301)

Tools and Equipment:

a. Paint gun
b. Solvent
c. Brush
d. Hand tools

CLASSROOM HOURS

10

EVALUATION (PR-12)

a. Given a paint gun, the learner will clean the paint gun so it is free of paint residue and functions properly.

b. Test questions are available in text references previously listed.

TASK

PR-13 Estimating parts replacement

PERFORMANCE OBJECTIVE

Prepare estimate to repair damages of a wrecked vehicle.

INSTRUCTIONAL ACTIVITIES

Provide Information On:

a. Terms and definitions
b. Abbreviations
c. Car and model identification
d. Parts book
e. Operation times (flat-rate)
f. Operation times (estimated)

Provide Demonstration On:

Developing repair estimates

Provide Practical Application On:

Developing repair estimate

INSTRUCTIONAL MATERIALS

Textbooks:

a. Rutgers
b. Mitchell

A/Vs:

a. Prentice-Hall, "Autobody Repair: Metal Work" (Filmstrip #6)
b. Georgia, "Auto Body Repair" (ABR-501-1)
c. Ford, "Estimating Collision and Paint Repairs" (Slide set 4650-003)

Student Manuals:

a. Oklahoma, Auto Body (Unit 7)
b. Georgia, Auto Body Repair (ABR-501, 502, 503, 504, 505)
c. Ford, "Estimating Collision and Paint Repairs" (4650-003)

Tools and Equipment:

a. Estimating forms
b. Pencil

CLASSROOM HOURS

10

EVALUATION (PR-13)

a. Given a vehicle, the learner will calculate a repair estimate. The learner's repair estimate must be within $25.00 of the instructor's estimate.

b. Test questions are available in text references previously listed.

c. V'TECS, Auto Body Repair, Task No. 5

TASK

PR-14 Estimating labor

PERFORMANCE OBJECTIVE

Prepare a labor estimate for repair work.

INSTRUCTIONAL ACTIVITIES

Provide Information On:

a. Terms and definitions
b. Abbreviations
c. Car and model identification
d. Parts book
e. Operation times (flat-rate)
f. Operation times (estimated)

Provide Demonstration On:

Developing repair estimates for labor

Provide Practical Application On:

a. Developing repair estimate for labor
b. Have learner combine parts and labor estimate for final estimate.

INSTRUCTIONAL MATERIALS

Textbooks:

a. Rutgers
b. Mitchell

A/Vs:

a. Georgia, "Auto Body Repair" (Slide set ABR 501-1)
b. Prentice-Hall, "Autobody Repair: Metal Work" (Filmstrip #6)

Student Manuals:

a. Georgia, Auto Body Repair (ABR-501, 502, 503, 504, 505)
b. Oklahoma, Auto Body (Unit 7)

Tools and Equipment:

a. Estimating forms
b. Pencil

CLASSROOM HOURS 10

EVALUATION (PR-14)

a. Given a vehicle the learner will calculate a labor estimate. The learners repair estimate must be within $25.00 of the instructor's estimate.

b. V'TECS, Auto Body Repair, Task No. 5

SECTION VI

REFERENCES, RESOURCES

INSTRUCTIONAL RESOURCE MATRIX

Introduction

The following Instructional Resource Matrix lists the instructional resources required to carry out the learning activities in each unit in the program. The resources are divided into the following categories: audio visuals, textbooks and student manuals.

Audio visuals and audio visual producers are identified by the following symbols: filmstrip (FS), slide/script (SS), slide/tape (ST), movie film (MF), transparencies (TR) and filmloops (FL). Producers are identified as follows: Bergwall (BW), Georgia Department of Education (GA), Mid-America Vocational Curriculum Consortium (MAVCC), Oklahoma Materials Center (OK) and Prentice-Hall (PH). Audio visuals available from the State of Georgia are either post secondary or secondary. Both are included in the matrix and can be used interchangeably with each unit guide. Post secondary audio visuals and materials are designated by numbers (i.e., 231-1) and secondary materials are identified by letter prefixes and numbers (i.e., HB-1).

Textbooks are identified by author. The complete reference can be found in the Textbook List at the end of this section and addresses are included in the Additional Resources section. Authors with more than one publication are identified by number.

Student manuals produced by Georgia are identified by unit number and title. Other materials are identified by publisher.

CURRICULUM AREA: Auto Body Repair

TASK LISTING	INSTRUCTIONAL MATERIAL REFERENCES		
	Audio-Visuals	Textbooks	Student Materials
MAJOR BLOCK: BODY AND FRAME REPAIR			
BF-01 Demonstrating an understanding of auto body structures	BW: "Safety in the Auto Body Shop" (FS)	Spicer	
BF-02 Naming the parts of a vehicle and describing how they are constructed and formed together		Spicer	OK: Student Manual (Units 1-4)
BF-03 Removing, replacing and aligning doors	GA: ABR-110 (ST)	Rhone	Georgia: ABR-107 Replacing Doors
BF-04 Removing and replacing grills and gravel deflectors	BW: "Auto Body Tools Explained" (FS)	Taite	OK: Student Manual (Units 4, 11)
BF-05 Removing and replacing a door lock assembly	BW: "Auto Body Tools Explained" (FS)	Taite	OK: Student Manual (Unit 4)
BF-06 Removing and replacing moldings	BW: "Auto Body Tools Explained" (FS)		OK: Student Manual (Unit 11)
BF-07 Removing and replacing weatherstrip		Toboldt	OK: Student Manual (Unit 13); Georgia: ABR-209 Replacing Weatherstripping
BF-08 Removing and replacing interior trim	GA: ABR-211 (ST)	Taite	OK: Student Manual (Unit 13); Georgia: ABR-211 Replacing Interior Trim
BF-09 Removing and replacing door trim panel	GA: ABR-109 (ST)	Taite	OK: Student Manual (Unit 13)
BF-10 Removing, replacing and adjusting headlamps	GA: ABR-103,104 (ST)	Taite	Georgia: ABR-701 Replacing Head Lamp Assembly

CURRICULUM ARFA: Auto Body Repair

TASK LISTING	INSTRUCTIONAL MATERIAL REFERENCES		
	Audio-Visuals	Textbooks	Student Materials
BF-11 Removing and replacing a headling	GA: ABR-210 (ST)	Taite	OK: Student Manual (Unit 13); Georgia: ABR-210 Replacing Headliner
BF-12 Removing and headlining a standard and energy absorbing front bumper	GA: ABR-102, 117 (ST); BW: "Auto Body Tools Explained" (FS)	Taite	OK: Student Manual (Unit 4); Georgia: ABR-102 Replacing Front Bumper
BF-13 Removing, replacing and aligning hood	GA: ABR-101, 107 (ST); PH: "Autobody Repair: Metal Work" (FS); BW: "Auto Body Tools Explained" (FS)	Taite	Georgia: ABR-106 Replacing Hood; ABR-110 Replacing and Aligning a Deck Lid
BF-14 Removing and replacing front fenders and wheel housing	GA: ABR-108 (ST); PH: "Autobody Repair: Metal Work" (FS)	Rhone; Toboldt	Georgia: ABR-105 Replacing Front Fender; ABR-111 Replacing Front Inner Fender (Bottom)
BF-15 Removing and replacing fuel tanks	GA: ABR-116 (ST); BW: "Auto Body Hand Tools Explained" (FS)	MacPherson	Georgia: ABR-112 Replacing Fuel Tanks
BF-16 Removing and replacing quarter panels and panel extensions	GA: ABR-601A, B, 5.8A (ST)	MacPherson	OK: Student Manual (Unit 6); Georgia: 601 Replacing Partial Quarter Panel; 602 Replacing Complete Quarter Panel
BF-17 Removing and replacing bolt in radiator supports	GA: ABR-113, 121 (ST); BW: "Auto Body Tools Explained" (FS)	Taite	OK: Student Manual (Unit 4); Georgia: ABR-104 Replacing Radiator Support
BF-18 Removing and replacing door skin	GA: ABR-111,111-1 (ST)	MacPherson	Georgia: ABR-608 Replacing Front Door Outer Panel; OK: Student Manual (Unit 6)

CURRICULUM AREA: Auto Body Repair

TASK LISTING	INSTRUCTIONAL MATERIAL REFERENCES		
	Audio-Visuals	Textbooks	Student Materials
BF-19 Removing a complete front end assembly	GA: ABR-119 (ST); BW: "Auto Body Tools Explained" (FS)		Georgia: ABR-605 Assembling a Complete Front End
BF-20 Removing and replacing window with adhesive sealent	GA: ABR-204, 205 (ST); ABR-201 (ST)	Toboldt	OK: Auto Body (Units 12, 13)
BF-21 Removing and replacing a windshield with rubber channel		Taite; Toboldt	
BF-22 Removing and replacing door glass regulator	GA: ABR-118 (ST)	Taite; MacPherson	Georgia: 205 Replacing Door Glass Regulator
BF-23 Removing and installing glass	GA: ABR-109, 110, 202 (ST)	Rhone; Taite; Spicer; MacPherson	OK: Student Manual (Units 12, 13); Georgia: ABR-202 Replacing Rear Window; ABR-204 Replacing Door Glass; ABR-206 Replacing Quarter Glass; ABR-207 Replacing Mirror
BF-24 Removing and replacing power window motors	GA: ABR-702 (ST)	Rhone; Taite	Georgia: ABR-704 Replacing Window Power Units
BF-25 Identifying welding processes	GA: ABR-A-1 (ST); PH: "Oxy-acetylene Welding" (FS); BW: "Welding Explained: Oxy-acetylene Fusion" (FS)	Sargent; Althouse	OK: Student Manual (Unit 5); Georgia: A-1 Oxy-acetylene Orientation
BF-26 Identifying welding gases	GA: ABR-A-2 (ST); PH: "Oxy-acetylene Welding" (FS); BW: Oxy-acetylene Fusion" (FS)	Sargent; Althouse	OK: Student Manual (Unit 5); Georgia: A-2 Cylinders and Gases

CURRICULUM AREA: Auto Body Repair

TASK LISTING	INSTRUCTIONAL MATERIAL REFERENCES		
	Audio-Visuals	Textbooks	Student Materials
BF-27 Identifying gas welding equipment	GA: ABR-A-3 (ST); PH: "Oxy-acetylene Welding" (FS); BW: "Welding Explained: Oxy-acetylene Fusion" (FS)	Sargent; Althouse	OK: Student Manual (Unit 5); Georgia: A-3 Regulators
BF-28 Demonstrating safe handling of equipment and gases	GA: ABR-A-5 (ST); PH: "Oxy-acetylene Welding" (FS); BW: "Welding Explained: Oxy-acetylene Fusion" (FS)	Althouse	OK: Student Manual (Unit 5); Georgia: A-5
BF-29 Setting up equipment and lighting the torch	GA: ABR-A-4, A-6 (ST); PH: "Oxy-acetylene Welding" (FS); BW: "Welding Explained: Oxy-acetylene Fusion" (FS)	Althouse	OK: Student Manual (Unit 5); Georgia: A-4 Torches and Tips; A-6 Setting Up and Lighting the Torch
BF-30 Forming and carrying a puddle (no filler rod)	GA: ABR-A-8 (ST); PH: "Oxy-acetylene Welding" (FS); BW: "Welding Explained: Oxy-acetylene Fusion" (FS)		OK: Student Manual (Unit 5); Georgia: A-8 Carrying Puddle Without a Filler Rod
BF-31 Welding outside corner joints (no filler rod)	PH: "Oxy-acetylene Welding" (FS); BW: "Welding Explained: Oxy-acetylene Fusion" (FS)		OK: Student Manual (Unit 5); Georgia: A-9 Weld Outside Corner Joint

CURRICULUM AREA: Auto Body Repair

TASK LISTING	INSTRUCTIONAL MATERIAL REFERENCES		
	Audio-Visuals	Textbooks	Student Materials
BF-32 Forming beads with filler rod	GA: ABR-A-9 (ST); PH: "Oxy-acetylene Welding" (FS)		OK: Student Manual (Unit 5); Georgia: A-10 Make Beads with Filler Rods
BF-33 Cutting metal with cutting torch	GA: ABR-A-15 (ST); PH: "Oxy-acetylene Welding" (FS); BW: "Welding Explained: Oxy-acetylene Fusion" (FS)		Georgia: A-14 Flame Cutting Process; A-15 Lighting and Cutting Straight Lines with the Cutting Torch
BF-34 Piercing, cutting and forming holes	GA: ABR-A-16 (ST); PH: "Oxy-acetylene Welding" (FS); BW: "Welding Explained: Oxy-acetylene Fusion" (FS)		Georgia: A-16 Piercing and Cutting Holes
BF-35 Welding butt joints	PH: "Oxy-acetylene Welding" (FS); GA: ABR-A-10, 11 (ST)		Georgia: A-11 Weld a Butt Joint
BF-36 Welding a lap joint	GA: ABR-A-12 (ST); PH: "Oxy-acetylene Welding" (FS)		Georgia: A-12 Weld a Lap Joint
BF-37 Forming beads with a brass rod	GA: ABR-A-18 (ST); PH: "Oxy-acetylene Welding" (FS)		Georgia: A-18 Making Beads with a Brass Rod; OE: Student Manual (Unit 5)
BF-38 Brazing a lap joint	PH: "Oxy-acetylene Welding" (FS)		Georgia: A-19 Brazed Lap Joint; OE: Student Manual (Unit 5)

CURRICULUM AREA: Auto Body Repair

TASK LISTING	INSTRUCTIONAL MATERIAL REFERENCES		
	Audio-Visuals	Textbooks	Student Materials
BF-39 Setting up the arc welder	GA: B-1; B-3; B-4; B-6; B-9 (ST)	Althouse	Georgia: (Welding Program) B-1 Introduction to Shielded Arc Welding; B-3 Identification of Arc Welding Machines; B-4 Electrical Circuits; B-6 Setting up Welding Machine and Striking an Arc; B-9 Identifying and Selecting Electrodes
BF-40 Demonstrating safe welding practices	GA: B-2 (ST)	Althouse	Georgia: (Welding Program) B-2 Shielded Arc Welding Safety
BF-41 Measuring for welding			Georgia: (Welding Program) A-7A Measurement
BF-42 Welding butt joints	GA: B-8 (ST)	Althouse	Georgia: (Welding Program) B-8 Welding a Butt Joint in the Flat Position Using E6013 Electrodes; B-13 Welding a Butt Joint in the Flat Position Using E6010 Electrodes; B-17 Welding a Square Groove Butt Joint in the Horizontal Position; B-19 Welding a Butt Joint in the Vertical Position; B-24 Welding a Square Groove Butt Joint in the Overhead Position; B-27 Welding a Square Groove Butt Joint in the Flat Position (Iron Powder Electrodes); B-30 Welding a Three Pass V Groove Butt Joint in the Flat Position; B-32 Welding a Butt Joint in the Overhead Position Using E7018 Electrodes; B-35 Welding a Square Groove Butt Joint in the Flat Position Using Light Gage Metal; B-38 Welding a Butt Joint on Light Gage Metal in the Vertical Downhill Position

TASK LISTING	INSTRUCTIONAL MATERIAL REFERENCES		
	Audio-Visuals	Textbooks	Student Materials
BF-43 Welding flat T-joints		Althouse	Georgia: (Welding Program) B-11 Welding a Tee Fillet in the Horizontal Position Using E6013 Electrodes; B-15 Welding a Tee Joint in the Horizontal Position Using E6010 Electrodes; B-21 Welding a 3 Bead Tee Joint in the Vertical Position; B-22 Welding a Tee Fillet Joint with One Root and Two Weave Beads; B-26 Welding a 3 Bead Tee Joint in the Overhead Position; B-31 Welding a 3 Bead Tee Fillet in the Vertical Uphill Position; B-33 Welding a 3 Bead Tee Fillet Joint in the Overhead Position Using E7018 Electrodes
BF-44 Welding lap joints	GA: B-10 (ST)	Althouse	Georgia: (Welding Program) B-9 Identifying and Selecting Electrodes; B-10 Welding a Lap Joint in the Horizontal Position Using E6013 Electrodes; B-14 Welding a Lap Joint in the Horizontal Position Using E6010 Electrodes; B-20 Welding a Single Pass Lap Joint in the Vertical Position; B-25 Welding a Lap Joint in the Overhead Position; B-36 Welding a Lap Joint in the Horizontal (Flat) Position Using Light Gage Metal; B-39 Welding a Lap Joint in the Vertical Downhill Position (2 Metal Thicknesses)
BF-45 Checking frame alignment			Georgia: ABR-401 Checking Frame Alignment

CURRICULUM AREA: Auto Body Repair

TASK LISTING	INSTRUCTIONAL MATERIAL REFERENCES		
	Audio-Visuals	Textbooks	Student Materials
BF-46 Aligning body and frame	GA: ABR-401, 402 (ST)		Georgia: ABR-402 Straightening Frame Horn; ABR-403 Straightening Unitized Frame; ABR-404 Straightening Frame; Student Manual (Unit 3)
BF-47 Bumping and dinging techniques	GA: ABR-05 (ST); PH: "Autobody Repair: Metal Work" (FS); BW: "Auto Body Repair" (FS)	Spicer	OK: Student Manual (Unit 6)
BF-48 Correcting metal damage with a hammer and dolly block	GA: ABR-01 (ST); PH: "Autobody Repair: Metal Work" (FS); BW: "Auto Body Repair" (FS)	Spicer	OK: Student Manual (Unit 7)
BF-49 Removing paint, smoothing metal and finding low spots	GA: ABR-05, 06 (ST); PH: "Autobody Repair: Refinishing" (FS)	Spicer	OK: Student Manual (Unit 7)
BF-50 Removing a minor dent using a pick hammer, dolly and file	GA: ABR-1,14 (ST); PH: "Autobody Repair: Metal Work" (FS); BW: "Auto Body Repair" (FS)	MacPherson; Spicer	OK: Student Manual (Unit 6); Georgia: ABR-1 Removing a Minor Dent
BF-51 Removing a minor dent or gouge using a drill motor pull rod and body file	GA: ABR-3, 4, 10 (ST); PH: "Autobody Repair: Metal Work" (FS); BW: "Auto Body Repair" (FS)	MacPherson; Rhone	Georgia: ABR-2 Removing a Minor Dent with a Pull Rod

CURRICULUM AREA: Auto Body Repair

TASK LISTING		INSTRUCTIONAL MATERIAL REFERENCES		
		Audio-Visuals	Textbooks	Student Materials
BF-52	Filling 1/8" holes or smaller with soldering iron and solder	GA: ABR-5, 6, 7 (ST); PH: "Automotive Sheet Metal Repair" (FS)	MacPherson	Georgia: ABR-3 Filling Holes with Solder
BF-53	Repairing a hole or rust damage using a fiberglass patch	GA: ABR-32 (ST); PH: "Automotive Sheet Metal Repair" (FS)	MacPherson; Rhone	OK: Student Manual (Unit 6); Georgia: ABR-15 Repairing Areas with Fiberglass Patches
BF-54	Removing rusted out area of a panel and replacing it with a new sheet metal patch	GA: ABR-25, 26, 27, 32 (ST)	Rhone	OK: Student Manual (Unit 6); Georgia: ABR-11 Installing a Scab Patch; ABR-12 Installing a Flush Patch
BF-55	Repairing damaged area using lead to fill imperfections	PH: "Autobody Repair: Metal Work" (FS)	Rhone	OK: Student Manual (Unit 6)
BF-56	Mixing and applying plastic body filler	GA: ABR-29, 30, 31 (ST); PH: "Automotive Sheet Metal Repairs" (FS); BW: "Auto Body Repair" (FS)	Spicer; Rhone	OK: Student Manual (Unit 6); Georgia: ABR-13 Repairing Damaged Area with Plastic Body Filler
BF-57	Repairing a tear in a panel	GA: ABR-23, 24 (ST)		OK: Student Manual (Unit 6); Georgia: ABR-10 Repairing a Tear
BF-58	Removing partial panel and welding patch		Rhone	OK: Student Manual (Units 5, 6)
BF-59	Repairing broken fiberglass with repair kit	GA: ABR-32 (ST); PH: "Automotive Sheet Metal Repair" (FS)	Spicer; Rhone	Georgia: ABR-15 Repairing Areas with Fiberglass Patches; OK: Student Manual (Unit 6)

CURRICULUM AREA: Auto Body Repair

TASK LISTING	INSTRUCTIONAL MATERIAL REFERENCES		
	Audio-Visuals	Textbooks	Student Materials
MAJOR BLOCK: PAINTING AND REFINISHING			
PR-01 Locating paint code		Hobson	
PR-02 Surface conditioning	GA: ABR-307 (ST)	Hobson; Ditzler	OK: Student Manual (Unit 7); Georgia: ABR-307 Preparing Bare Metal for a Color Coat
PR-03 Masking a vehicle	GA: ABR-303 (ST); PH: "Autobody Repair: Refinishing" (FS)	Hobson; Taite; Rhone; 3M Co.	OK: Student Manual (Unit 7); Georgia: ABR-303 Masking
PR-04 Adjusting gun and air pressure and spraying enamel sealer	GA: ABR-301A, 302 (ST)	Hobson; Ditzler	OK: Student Manual (Unit 7); Georgia: ABR-301A Maintaining Paint Gun; ABR-302 Applying Primer Surfacer
PR-05 Featheredging all broken areas of finish		Hobson; Ditzler	OK: Student Manual (Unit 7)
PR-06 Applying primer surfacer and hand sanding vechicle	GA: ABR-302, 305A (ST)	Rhone; R & M; Hobson	OK: Student Manual (Unit 7); Georgia: ABR 302 Applying Primer Surfacer; ABR 305 Sealers, Uses and Properties
PR-07 Spot painting a solid color	GA: ABR-304A, 304, 304-1 (ST); PH: "Autobody Repair: Refinishing" (FS)	Hobson; Ditzler	OK: Student Manual (Unit 7); Georgia: ABR-304 Spot Painting Solid Colors with Acrylic Lacquer; ABR-304A Lacquers, Solvents and Thinners

CURRICULUM AREA: Auto Body Repair

TASK LISTING	INSTRUCTIONAL MATERIAL REFERENCES		
	Audio-Visuals	**Textbooks**	**Student Materials**
PR-14 Estimating labor	PH: "Autobody Repair: Metal Work" (FS); GA: ABR-501-1 (ST)	Rutgers; Mitchell	OK: Student Manual (Unit7); Georgia: ABR-501 Appraising Collision Damage; ABR-502 Estimating Rear End Damage; ABR-503 Estimating Front End Damage; ABR-504 Estimating Side Damage; ABR-505 Estimating Roll Damage

TEXTBOOK LIST

Althouse, A.D., Turnquist, C.H. and Bowditch, W.A., Modern Welding. South Holland, IL: Goodheart-Willcox, 1980.

Ditzler, Repaint Manual. Detroit, MI.

Hobson, W.T., Automotive Refinishing. Wilmington, DE: Dupont, 1973.

3M-Company, Automotive Refinishing Manual. Atlanta, GA.

MacPherson, R.C., Automotive Collision Appraisal. Hightstown, NJ: McGraw-Hill 1975.

MacPherson, R.C., Collision Repair Guide. Hightstown, NJ: McGraw-Hill, 1971.

Mitchell Manuals, Inc., Collision Estimating Guide. San Diego, CA. (published yearly).

Rhone, L.C., Total Auto Body Repair. Indianapolis, IN: Howard W. Sams.

Richert, M.T., How to Control Auto Body Sheet Metals. Radnor, PA: Chilton, 1975.

Rinished-Mason, Refinishers Guide. Detroit, MI: Inmont Corportation.

Rutgers University, Auto Body and Fender Repair. New Brunswick, NJ: Curriculum Laboratary, 1974.

Rutgers University, Auto Body Refinishing. New Brunswick, NJ: Curriculum Laboratory, 1976.

Rutgers University, Auto Body Repair: Glossary of Key Words. New Brunswick, NJ: Curriculum Laboratory.

Spicer, E.D., Automotive Collision Work. Chicago, IL: American Technical Publishers.

Tait, DeRoche and Hilderbrand, The Principles of Auto Body Repairing and Repainting. Tarrytown, NY: Prentice-Hall.

Toboldt, B., Auto Body Repairing and Repainting. South Holland, IL: Goodheart-Willcox, 1979.

ADDITIONAL INSTRUCTIONAL RESOURCES

Item: Automobile Manufacture's Educational Materials

Resource	Product	Description
American Motors Corporation 14250 Plymouth Road Detroit, MI 48232	Automobiles	Training aids, shop manuals and special tools
Chrysler Corporation P.O. Box 1919 Detroit, MI 48232	Automobiles	Training aids, shop manual and special tools
Ford Motor Company The American Road Dearborn, MI 48121	Automobiles	Training aids, shop manual and special tools
General Motor Corporation 2860 Clark Avenue Detroit, MI 48232	Automobiles	Training aids, shop manual and special tools

ADDITIONAL INSTRUCTIONAL RESOURCES

Item: Publishers of Textbooks, Audio-Visuals and Programs

Resource	Product	Description
AAVIM 120 Engineering Center Athens, GA 30602	Textbooks & audio-visuals	Teacher & student materials with slides & transparencies
American Technical Publishers, Inc. 5608 Stony Island Avenue Chicago, IL 60637	Textbooks	Auto body repair
Automated Training, Inc. 1401 S. Mint St., Box 34707 Charlotte, NC 28234	Audio-visuals	Film loops & filmstrips in auto body
Bergwall Productions, Inc. Garden City, NY 11530	Audio-visuals	Filmstrips in auto body
Charles A. Bennett Co., Inc. 809 W. Detweiller Drive	Textbooks	Automotive & power mechanics auto body repair
DCA Educational Products 424 Valley Road Warrington, PA 18976	Audio-visuals	Transparencies & film loops in auto body repair
Delmar Publishers 7625 Empire Drive Florence, KY 41042	Textbooks	Auto body repair, math & science textbooks for trades
E. I. duPont de Nemours & Co. Refinish Division Wilmington, DE 19898	Paints and supplies	Refinishing guides and numerous helpful materials
Goodheart-Willcox Co. 123 W. Tart Drive South Holland, IL 60473	Textbooks	Auto body repair

Resource	Product	Description
Hobar Publications 1234 Tiller Lane St. Paul, MN 55112	Catalog of instructional materials	A compilation of different manuf. of audio-visuals, texts, tools, etc. for auto body repair
Howard W. Sams & Co., Inc. 4300 West 62nd St. Indianapolis, IN 46206	Textbooks	Auto body repair
John Wiley & Sons 605 3rd Avenue New York, NY 10158	Textbooks	Auto body repair
3M Company 2860 Bankers Industrial Atlanta, GA 30360	Abrasives and adhesives	Sand paper, weather stripping, etc.
McGraw-Hill P.O. Box 996 Norcross, GA 30091	Textbooks	Large selection of auto body student materials and slides
McKnight Publishing Co. Bloomington, IL 61701	Textbooks	Auto body repair
Oklahoma State Dept. of Vocational-Technical Education Curriculum & Instructional Materials Center 1515 W. Sixth Avenue Stillwater, OK 74074	Student materials	Comprehensive auto body program with teacher guides and student manuals
Prentice-Hall Media ServCode XF 150 White Plains Rd. Tarrytown, NY 10591	Textbooks & audio-visuals	Auto body & small repair
School Media Associates 2620 Caladium Drive N.E. Atlanta, GA 30345	Audio-visuals	A compilation of various manuf. of slides, filmstrips, transparencies & student materials in auto body repair

Resource	Product	Description
University of Missouri-Columbia 10 Industrial Education Bldg. Columbia, MO 65211	Catalog of instructional materials	A compilation of materials from universities & manuf. for auto body repair
Vocational Curriculum Laboratory Cedar Lakes Conference Center Ripley, WV 25271	CBE curriculum	Auto body program, student manual and teacher's guide (1979)

ADDITIONAL INSTRUCTIONAL RESOURCES

Item: Comprehensive Repair Manuals

Resource	Product	Description
Chilton Book Company Chilton Way Radnor, PA 19089	Chilton's Automotive Service Manual	Repair manual, published yearly for domestic & foreign cars; Also publish flat rate manuals
Mitchell Manuals, Inc. P.O. Box 80427 San Diego, CA 92138	Mitchell	Repair manuals, Collision Estimating Guide
Motor 1790 Broadway New York, NY 10019	Motor Auto Repair Manual; Motor Crash Estimating Guide	Repair manual published yearly for domestic & foreign cars; Also publish flat rate manuals & truck repair manuals

ADDITIONAL INSTRUCTIONAL RESOURCES

Item: Tools, Equipment and Supplies

Resource	Product	Description
Airomax Corporation P.O. Box 96 Gibbstown, NJ 60131	Air Cleaner	Air filter
Albertson & Company Inc. Sioux City, IA 51102	Automotive tools	Special tools & equipment for engine repair
Alemite Division Stewart-Warner Corp. 1826 W. Diversey Parkway Chicago, IL 60614	Lubrication equipment	Grease guns, pumps, etc.
Allen Electric & Equipment Co. 2101 N. Pitcher St. Kalamazoo, MI 49007	Electrical test equipment	Charging system testers, etc.
Auto Specialties Manufacturing Company St. Joseph, MI 49085	Automotive lifting equipment	Lifts, jacks, stands, etc.
Balcrank Products Wheelabrator-Frye, Inc. 400 South Byrkit Ave. Mishawaka, IN 46544	Lubrication equipment	Grease guns, pumps, etc.
Bear Manufacturing Corp. 2830 Fifth Street Rock Island, IL 61201	Front end equipment	Alignment racks, tire balancing equipment
Binks 9201 W. Belmont Avenue Franklin Park, IL 60131	Spray painting equipment	Paint spray gun, paint booths
Black & Decker Manufacturing Company Towson, MD 21204	Air & electric tools & equipment	Air wrenches, electric drills, etc.
Blackhawk Manufacturing Co. Applied Power Industries, Inc. Milwaukee, WI 53227	Tools	Jacks, stands, hand tools

Resource	Product	Description
Ditzler PPG Industries Ditzler Automotive finishes Box 5090 Detroit, MI 48235	Paint and supplies	Paint, etc.
Eltron Manufacturing, Inc. Interstate Industrial Park Bellmawr, NJ 08031	Electronic air cleaners	Air filters
Herbrand, Kelsey Hayes Tool Division Orangeburg, SC 29115	Hand tools	Wrenches, hammers, etc.
Hunter Engineering Co. 1350 Hunter Drive Bridgton, MO 63044	Front end equipment	Alignment racks, tire balancing equipment
Ingersol Rand/Proto Tool Co. 2301 Santa Fe Avenue Los Angeles, CA 90058	Hand & power tools	
John Bean Division FMC Corporation Lansing, MI 48900	Front end equipment	Alignment racks, tire balancing equipment
K-D Manufacturing Co. Hempland Road Lancaster, PA 17604	Special tools	Automotive tools & repair equipment
Leonard Safety Equipment Co. 253 Waterman Avenue East Providence, RI 02914	Safety equipment	Eye goggles, shields, etc.
Mac Tools, Inc. Washington Court House, OH 43160	Hand tools & automotive repair equipment	Wrenches, sockets, test equipment, etc.
Marquette Corp. 307 East Hennepin Avenue Minneapolis, MN 55414	Test equipment	Battery chargers, testers, etc.
Milwaukee Hydraulic Products Corp. Milwaukee, WI 53214	Automotive lifting equipment	Hydraulic presses, jacks, stands, etc.

Resource	Product	Description
Morris Tools 724 Penryn Road Manheim PA 17545	Tools	Specialty tools & equipment for automotive repair
Owatonna Tool Company P.O. Box 268 Owatonna, MN 55060	Special tools, gear pullers	Bearing & gear pullers, etc.
PPG (See Ditzler) P & C Hand Tool Co. P.O. Box 22066 Portland, OR 93222	Hand tools	Wrenches, sockets, etc.
Proto Tool Division Ingersol Rand Corp. 3900 Wesley Terrace Schiller Park, IL 60176	Hand tools	Wrenches, sockets, etc.
Rinished-Mason R-M Products Inmont Corp. Detroit, MI 48210	Paint and supplies	Paint, etc.
Rockwell International Power Tool Division 6263 Poplar Avenue Memphis, TN 37901	Air & electric tools	Air wrenches, electric drills, etc.
S.K. Wayne Tool Co. Chicago, IL 60604	Hand tools	Wrenches, sockets, etc.
Snap-On Tools Corp. 8028 28th Avenue Kenosha, WI 53140	Hand tools & automotive repair equipment	Wrenches, sockets, test equipment, etc.
Stewart-Warner Corp. Alemite & Instrument Division 1826 Diversey Parkway Chicago, IL 60614	Front end equipment	Alignment racks, tire balancing, lubrication equipment, etc.
Walker Manufacturing Co. 1201 Michigan Blvd. Racine, WI 53402	Automotive lifting equipment	Lifts, jack stands, etc.
Weaver Division Dura Corp. 2171 South 9th Street Springfield, IL 62705	Automotive lifting equipment	Jacks, car stands, etc.

ADDITIONAL INSTRUCTIONAL RESOURCES

Item: Parts and Accessory Manufacturers

Resource	Product	Description
AC-Delco Division General Motors Corp. 400 Renaissance Center Detroit, MI 48243	Automotive parts and accessories	Batteries, spark plugs, fuel pumps, alternators, etc.
Auto-lite Division Ford Motor Company 1122 Millidge Drive East Point, GA 30344	Automotive parts and accessories	Batteries, spark plugs, fuel pumps, alternators, etc.
CRC Chemicals Division of C. J. Webb, Inc. Limekiln Pike P.O. Box 100 Dresher, PA 19025	Lubricants	Lubricants, penetrants, cleaners
Dana Parts Corp. P.O. Box 500 Hagerstown, IN 47346	Automotive parts	Transmission, rear end parts & engine parts
Gabriel Division Maremount Corp. 1283 Murfreesboro Road Nashville, TN 37217	Automotive parts	Shock absorbers
The Goodyear Tire & Rubber Co. Akron, OH 44309	Automotive parts	Tires, hoses, belts
Harrison Radiator Division General Motors Corp. Lockport, NY 14094	Automotive parts	Radiators, heaters and air conditioners
Moog Industries Box 7224 St. Louis, MO 63177		
NAPA Distribution Center P.O. Box 2000 Norcross, GA 30091	Automotive parts and accessories	Parts and components for automotive systems

Resource	Product	Description
TRW, Inc. Replacement Division 8001 E. Pleasant Valley Rd. Cleveland, OH 44131	Automotive parts	Parts and components for all systems
Union Carbide Corp. 270 Park Avenue New York, NY 10017	Chemicals	Antifreeze, etc.

ADDITIONAL INSTRUCTIONAL RESOURCES

In addition to the instructional resources listed in this asection, the Government Printing Office has compiled a bibliographical listing of instructional materials available from federal agencies. Vocational instructors, supervisors and counselors are encouraged to request the eight volume set of Vocational Instructional Materials available from federal agencies. This set may be purchased from:

The Superintendent of Documents
U.S. Government Printing Office
Washington, DC 20402

SECTION VII

STUDENT RECORDS

STUDENT RECORDS

This section contains four forms, the Individual Progress Report Chart, the Group Progress Chart, the Competency Checklist and the Certificate of Competency. The use of these charts is described below and on page 6.

INDIVIDUAL PROGRESS REPORT

One copy should be kept in each student's confidential file and updated as tasks are completed. Grades should be assigned upon task completion and then averaged for grade reporting. Difficulty, excessive amounts of time, etc. should be noted on this form and should be discussed with the student.

GROUP PROGRESS CHART

This chart reflects task completion only and can be displayed in the classroom or lab area. Due to confidentiality of records, a grade must not be recorded. The instructor should maintain a copy of this record and update it daily.

INDIVIDUAL PROGRESS REPORT

NAME ______________________________

PROGRAM/ CLUSTER ______________________________ AREA ______________________________

TASK/ UNIT NO.	UNIT TITLE	DATE STARTED	DATE COMP.	EST. TIME	GRADE

GROUP PROGRESS CHART

NAME	UNITS/TASKS																				

COMPETENCY CHECKLIST

The Competency Checklist is an easy device for the instructor to use to know when a student is eligible to receive a Certificate of Competency (shown on page 12). One Checklist is used per student for as long as the student stays in the program. The instructor may use the checklist in the following manner:

1. Enter the student's name on the form.
2. As the student masters each task, check off the task under each job title on the Competency Checklist for which it appears.
3. Keep the Checklist in each student's personal file or keep all Competency Checklists together in a separate file.
4. When all the tasks underneath a job title have been checked off, the student is eligible to receive a Certificate of Competency for that job title.

CERTIFICATE OF COMPETENCY

The Certificate of Competency is issued by the instructor to certify that the student has mastered the tasks necessary for entry level employment for the job listed on the Certificate. The specific tasks that have been mastered are printed on the back of the Certificate, which can be used by the student to show a prospective employer exactly what the student is qualified to do. The Certificates should be printed ahead of time so that the instructor may simply fill in the front of the Certificate whenever a student is eligible to receive one, as indicated by the student's Competency Checklist. A sample completed Certificate of Competency appears on page 9 followed by a Certificate of Competency for each of the possible Auto Body program exit points (job titles).

The Certificate should be completed by the instructor as follows:

1. Enter the student's name.
2. Enter the school name.
3. Date and sign the Certificate.
4. It is recommended that the Certificate be stamped with the school seal.

COMPETENCY CHECKLIST

____
Student Name

As the student masters each unit of instruction, check off the unit number under each of the following job titles where it appears. When all the units under a job title have been completed, the student is eligible to receive a Certificate of Competency for that job title.

Steam Cleaner
915.687-026

- ☐ PR-02
- ☐ PR-11

Body Masker
749.687-018

- ☐ PR-01
- ☐ PR-02
- ☐ PR-03
- ☐ PR-04
- ☐ PR-05
- ☐ PR-06
- ☐ PR-11
- ☐ PR-12

Glass Installer
865.684-014

- ☐ BF-01
- ☐ BF-02
- ☐ BF-03
- ☐ BF-20
- ☐ BF-21
- ☐ BF-22
- ☐ BF-23
- ☐ BF-24

Auto Shop Estimator
807.267-010

- ☐ BF-01
- ☐ BF-02
- ☐ BF-03
- ☐ BF-04
- ☐ BF-05
- ☐ BF-06
- ☐ BF-07
- ☐ BF-08
- ☐ BF-09
- ☐ BF-10
- ☐ BF-11
- ☐ BF-12
- ☐ BF-13
- ☐ BF-14
- ☐ BF-45
- ☐ BF-46
- ☐ PR-13
- ☐ PR-14

ARC Welder
Apprentice
810.384-010

- ☐ BF-15
- ☐ BF-39
- ☐ BF-40
- ☐ BF-41
- ☐ BF-42
- ☐ BF-43
- ☐ BF-44

COMPETENCY CHECKLIST

____
Student Name

As the student masters each unit of instruction, check off the unit number under each of the following job titles where it appears. When all the units under a job title have been completed, the student is eligible to receive a Certificate of Competency for that job title.

Gas Welder Apprentice
811.684-010

( ) BF-15
( ) BF-25
( ) BF-26
( ) BF-27
( ) BF-28
( ) BF-29
( ) BF-30
( ) BF-31
( ) BF-32
( ) BF-33
( ) BF-34
( ) BF-35
( ) BF-36
( ) BF-37
( ) BF-38

Automotive Painter
845.381-014

( ) PR-01
( ) PR-02
( ) PR-03
( ) PR-04
( ) PR-05
( ) PR-06
( ) PR-07
( ) PR-08
( ) PR-09
( ) PR-10
( ) PR-11
( ) PR-12

Auto Painter Apprentice
845.381-010

( ) PR-01
( ) PR-02
( ) PR-03
( ) PR-04
( ) PR-05
( ) PR-06
( ) PR-07
( ) PR-08
( ) PR-09
( ) PR-10
( ) PR-11
( ) PR-12

Auto Body Helper
807.687-010

( ) BF-01
( ) BF-02
( ) BF-03
( ) BF-04
( ) BF-05
( ) BF-06
( ) BF-07
( ) BF-08
( ) BF-09
( ) BF-10
( ) BF-11
( ) BF-12
( ) BF-13
( ) BF-14
( ) BF-15
( ) BF-16
( ) BF-17
( ) BF-18
( ) BF-19
( ) BF-20
( ) BF-21
( ) BF-22
( ) BF-24
( ) BF-56
( ) PR-01
( ) PR-02
( ) PR-03
( ) PR-04
( ) PR-05
( ) PR-06
( ) PR-07
( ) PR-08

Auto Painter Helper
845.684-014

( ) PR-01
( ) PR-02
( ) PR-03
( ) PR-04
( ) PR-05
( ) PR-06
( ) PR-07
( ) PR-08
( ) PR-09

COMPETENCY CHECKLIST

____
Student Name

As the student masters each unit of instruction, check off the unit number under each of the following job titles where it appears. When all the units under a job title have been completed, the student is eligible to receive a Certificate of Competency for that job title.

Auto Body Customizer
807.361-010

( ) BF-01
( ) BF-02
( ) BF-03
( ) BF-04
( ) BF-05
( ) BF-06
( ) BF-07
( ) BF-08
( ) BF-09
( ) BF-10
( ) BF-11
( ) BF-12
( ) BF-13
( ) BF-14
( ) BF-15
( ) BF-16
( ) BF-17
( ) BF-18
( ) BF-19
( ) BF-20
( ) BF-21
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( ) BF-24
( ) BF-25
( ) BF-26
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( ) BF-31
( ) BF-32
( ) BF-33
( ) BF-34
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( ) BF-36
( ) BF-37
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( ) BF-40
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( ) BF-42
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( ) BF-44
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( ) BF-50
( ) BF-51
( ) BF-52
( ) BF-53
( ) BF-54
( ) BF-55
( ) BF-56
( ) BF-57
( ) BF-58
( ) BF-59
( ) PR-01
( ) PR-02
( ) PR-03
( ) PR-04
( ) PR-05
( ) PR-06
( ) PR-07
( ) PR-08
( ) PR-09
( ) PR-10
( ) PR-11
( ) PR-12
( ) PR-13
( ) PR-14

COMPETENCY CHECKLIST

____
Student Name

As the student masters each unit of instruction, check off the unit number under each of the following job titles where it appears. When all the units under a job title have been completed, the student is eligible to receive a Certificate of Competency for that job title.

Auto Body Repairer
807.381-010

( ) BF-01
( ) BF-02
( ) BF-03
( ) BF-04
( ) BF-05
( ) BF-06
( ) BF-07
( ) BF-08
( ) BF-09
( ) BF-10
( ) BF-11
( ) BF-12
( ) BF-13
( ) BF-14
( ) BF-15
( ) BF-16
( ) BF-17
( ) BF-18
( ) BF-19
( ) BF-20
( ) BF-21
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( ) BF-23
( ) BF-24
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( ) BF-26
( ) BF-27
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( ) BF-29
( ) BF-30
( ) BF-31
( ) BF-32
( ) BF-33
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( ) BF-44
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( ) BF-53
( ) BF-54
( ) BF-55
( ) BF-56
( ) BF-57
( ) BF-58
( ) BF-59
( ) PR-01
( ) PR-02
( ) PR-03
( ) PR-04
( ) PR-05
( ) PR-06
( ) PR-07
( ) PR-08
( ) PR-09
( ) PR-10
( ) PR-11
( ) PR-12
( ) PR-13
( ) PR-14

CERTIFICATE OF COMPETENCY

This is to Certify that

William Ryan Carey

of

SAMPLE

Athens Area Vo-Tech School

has successfully mastered the competencies required to perform the job of Body Masker.

James Watkins

June 10, 1981

The student named on this certificate has demonstrated mastery of the following tasks required to perform the job of Body Masker.

BODY MASKER
(D.O.T. 749.687-018)

Metal Preparation

Locating paint code and determining how much and what type of material to order for the repair
Washing and cleaning vehicle; removing old finish and treating bare metal for a good bond
Masking a vehicle for spot, panel or overall painting

Paint Application

Adjusting gun and air pressure to spray enamel, sealer and primer surfacer and apply to bare metal
Featheredging all broken areas of finish on a vehicle and applying sealer
Applying primer surfacer and hand-sanding a vehicle wet or dry
Compounding and polishing by hand and with a buffer
Cleaning and maintaining paint spray guns

CERTIFICATE OF COMPETENCY

This is to Certify that

____

of

____

has successfully mastered the competencies required to perform the job of ________ Steam Cleaner ________.

____

____

The student named on this certificate has demonstrated mastery of the following tasks required to perform the job of Steam Cleaner.

STEAM CLEANER
(D.O.T. 915.687-026)

Metal Preparation

Washing and cleaning vehicle; removing old finish

Paint Application

Compounding and polishing by hand and with a buffer

CERTIFICATE OF COMPETENCY

This is to Certify that

____

of

____

has successfully mastered the competencies required to perform the job of Body Masker.

____

____

The student named on this certificate has demonstrated mastery of the following tasks required to perform the job of Body Masker.

BODY MASKER
(D.O.T. 749.687-018)

Metal Preparation

Locating paint code and determining how much and what type of material to order for the repair
Washing and cleaning vehicle; removing old finish and treating bare metal for a good bond
Masking a vehicle for spot, panel or overall painting

Paint Application

Adjusting gun and air pressure to spray enamel, sealer and primer surfacer and apply to bare metal
Featheredging all broken areas of finish on a vehicle and applying sealer
Applying primer surfacer and hand-sanding a vehicle wet or dry
Compounding and polishing by hand and with a buffer
Cleaning and maintaining paint spray guns

CERTIFICATE OF COMPETENCY

This is to Certify that

of

has successfully mastered the competencies required to perform the job of Auto Body Helper.

The student named on this certificate has demonstrated mastery of the following tasks required to perform the job of Auto Body Helper.

AUTO BODY HELPER
(D.O.T. 807.687-010)

Body and Frame Component Replacement

Demonstrating an understanding of auto body structures
Naming the parts of a vehicle and describing how they are constructed and formed together
Removing, replacing and aligning doors
Removing and replacing grills and gravel deflectors
Removing and replacing a door lock assembly
Removing and replacing moldings
Removing and replacing weatherstrip
Removing and replacing interior trim
Removing and replacing door trim panel
Removing, replacing and adjusting headlamps
Removing and replacing a headliner
Removing and replacing standard and energy-absorbing front bumpers
Removing, replacing and aligning hood
Removing and replacing front fenders and wheel housing units
Removing and replacing fuel tanks
Removing and replacing quarter panels and extension
Removing and replacing bolt-in radiator supports
Removing and replacing door skin
Removing a complete front end assembly
Removing and replacing windows with adhesive sealant
Removing and replacing a windshield with rubber channels
Removing and replacing a door glass regulator
Removing and installing glass
Removing and replacing power window motors and locks

Metal Straightening and Preparation

Mixing and applying plastic body filler

Metal Preparation

Locating paint code and determining how much and what type of material to order for the repair
Washing and cleaning vehicle; removing old finish and treating bare metal for a good bond
Masking a vehicle for spot, panel or overall painting

Paint Application

Adjusting gun and air pressure to spray enamel, sealer and primer surfacer and apply to bare metal
Featheredging all broken areas of finish on a vehicle and applying sealer
Applying primer surfacer and hand-sanding a vehicle wet or dry
Spot painting a solid color
Painting a panel with a solid color

CERTIFICATE OF COMPETENCY

This is to Certify that

of

has successfully mastered the competencies required to perform the job of ARC Welder Apprentice.

The student named on this certificate has demonstrated mastery of the following tasks required to perform the job of Arc Welder Apprentice.

ARC WELDER APPRENTICE
(D.O.T. 810.384-010)

Body and Frame Component Replacement

Removing and replacing fuel tanks

Electric Arc Welding Processes

- Setting up the arc welder
- Demonstrating safe procedures
- Measuring for welding
- Welding butt joints
- Welding flat T-joints
- Welding lap joints

CERTIFICATE OF COMPETENCY

This is to Certify that

____

of

____

has successfully mastered the competencies required to perform the job of ________ Gas Welder Apprentice ________.

____

____

The student named on this certificate has demonstrated mastery of the following tasks required to perform the job of Gas Welder Apprentice.

GAS WELDER APPRENTICE
(D.O.T. 811.684-010)

Body and Frame Component Replacement

Removing and replacing fuel tanks

Acetylene Welding Processes

Identifying welding processes
Identifying welding gases
Identifying gas welding equipment
Demonstrating safe handling of equipment and gases
Setting up equipment and lighting torch
Forming and carrying a puddle (no filler rod)
Welding outside corner joints (no filler rod)
Forming beads with filler rod
Cutting metal with the torch
Cutting and forming holes
Welding butt joints
Welding lap joints
Forming beads with brass rods
Brazing lap joints

CERTIFICATE OF COMPETENCY

This is to Certify that

____

of

____

has successfully mastered the competencies required to perform the job of ________ Glass Installer ________.

____

____

The student named on this certificate has demonstrated mastery of the following tasks required to perform the job of Glass Installer.

GLASS INSTALLER
(D.O.T. 865.684-014)

Body and Frame Component Replacement

Demonstrating an understanding of auto body structures
Naming the parts of a vehicle and describing how they are constructed and formed together
Removing, replacing and aligning doors
Removing and replacing windows with adhesive sealant
Removing and replacing a windshield with rubber channels
Removing and replacing a door glass regulator
Removing and installing glass
Removing and replacing power window motors and locks

CERTIFICATE OF COMPETENCY

This is to Certify that

____

of

____

has successfully mastered the competencies required to perform the job of Auto Shop Estimator.

____

____

The student named on this certificate has demonstrated mastery of the following tasks required to perform the job of Auto Shop Estimator.

AUTO SHOP ESTIMATOR
(D.O.T. 807.267-010)

Body and Frame Component Replacement

- Demonstrating an understanding of auto body structures
- Naming the parts of a vehicle and describing how they are constructed and formed together
- Removing, replacing and aligning doors
- Removing and replacing grills and gravel deflectors
- Removing and replacing a door lock assembly
- Removing and replacing moldings
- Removing and replacing weatherstrip
- Removing and replacing interior trim
- Removing and replacing door trim panel
- Removing, replacing and adjusting headlamps
- Removing and replacing a headliner
- Removing and replacing standard and energy-absorbing front bumpers
- Removing, replacing and aligning hood
- Removing and replacing front fenders and wheel

Body and Frame Alignment

- Checking alignment
- Aligning body and frame

Estimating

- Estimating parts replacement
- Estimating labor

CERTIFICATE OF COMPETENCY

This is to Certify that

____

of

____

has successfully mastered the competencies required to perform the job of Auto Painter Helper.

____

____

The student named on this certificate has demonstrated mastery of the following tasks required to perform the job of Auto Painter Helper.

AUTO PAINTER HELPER
(D.O.T. 845.684-014)

Metal Preparation

Locating paint code and determining how much and what type of material to order for the repair
Washing and cleaning vehicle; removing old finish and treating bare metal for a good bond
Masking a vehicle for spot, panel or overall painting

Paint Application

Adjusting gun and air pressure to spray enamel, sealer and primer surfacer and apply to bare metal
Featheredging all broken areas of finish on a vehicle and applying sealer
Applying primer surfacer and hand-sanding a vehicle wet or dry
Spot painting a solid color
Painting a panel with a solid color
Painting a vehicle with alkyd and acrylic enamel.

CERTIFICATE OF COMPETENCY

This is to Certify that

____

of

____

has successfully mastered the competencies required to perform the job of ________Auto Painter Apprentice________.

____

____

The student named on this certificate has demonstrated mastery of the following tasks required to perform the job of Auto Painter Apprentice.

AUTO PAINTER APPRENTICE
(D.O.T. 845.381-010)

Metal Preparation

Locating paint code and determining how much and what type of material to order for the repair
Washing and cleaning vehicle; removing old finish and treating bare metal for a good bond
Masking a vehicle for spot, panel or overall painting

Paint Application

Adjusting gun and air pressure to spray enamel, sealer and primer surfacer and apply to bare metal
Featheredging all broken areas of finish on a vehicle and applying sealer
Applying primer surfacer and hand-sanding a vehicle wet or dry
Spot painting a solid color
Painting a panel with a solid color
Painting a vehicle with alkyd and acrylic enamel
Painting a panel and spot painting a panel with metallic colors
Compounding and polishing by hand and with a buffer
Cleaning and maintaining paint spray guns

CERTIFICATE OF COMPETENCY

This is to Certify that

of

has successfully mastered the competencies required to perform the job of Automotive Painter.

The student named on this certificate has demonstrated mastery of the following tasks required to perform the job of Automotive Painter.

AUTOMOTIVE PAINTER
(D.O.T. 845.381-014)

Metal Preparation

Locating paint code and determining how much and what type of material to order for the repair

Washing and cleaning vehicle; removing old finish and treating bare metal for a good bond

Masking a vehicle for spot, panel or overall painting

Paint Application

Adjusting gun and air pressure to spray enamel, sealer and primer surfacer and apply to bare metal

Featheredging all broken areas of finish on a vehicle and applying sealer

Applying primer surfacer and hand-sanding a vehicle wet or dry

Spot painting a solid color

Painting a panel with a solid color

Painting a vehicle with alkyd and acrylic enamel

Painting a panel and spot painting a panel with metallic colors

Compounding and polishing by hand and with a buffer

Cleaning and maintaining paint spray guns

CERTIFICATE OF COMPETENCY

This is to Certify that

____

of

____

has successfully mastered the competencies required to perform the job of ______Auto Body Customizer______.

____

____

The student named on this certificate has demonstrated mastery of the following tasks required to perform the job of Auto Body Repairer.

AUTO BODY CUSTOMIZER
(D.O.T. 807.361-010)

Body and Frame Component Replacement

Demonstrating an understanding of auto body structures
Naming the parts of a vehicle and describing how they are constructed and formed together
Removing, replacing and aligning doors
Removing and replacing grills and gravel deflectors
Removing and replacing a door lock assembly
Removing and replacing moldings
Removing and replacing weatherstrip
Removing and replacing interior trim
Removing and replacing door trim panel
Removing, replacing and adjusting headlamps
Removing and replacing a headliner
Removing and replacing standard and energy-absorbing front bumpers
Removing, replacing and aligning hood
Removing and replacing front fenders and wheel housing units
Removing and replacing fuel tanks
Removing and replacing quarter panels and extension
Removing and replacing bolt-in radiator supports
Removing and replacing door skin
Removing a complete front end assembly
Removing and replacing windows with adhesive sealant
Removing and replacing a windshield with rubber channels
Removing and replacing a door glass regulator
Removing and installing glass
Removing and replacing power window motors and locks

Acetylene Welding Processes

Identifying welding processes
Identifying welding gases
Identifying gas welding equipment
Demonstrating safe handling of equipment and gases
Setting up equipment and lighting torch
Forming and carrying a puddle (no filler rod)
Welding outside corner joints (no filler rod)
Forming beads with filler rod
Cutting metal with the torch
Cutting and forming holes
Welding butt joints
Welding lap joints
Forming beads with brass rods
Brazing lap joints

Electric Arc Welding Processes

Setting up the arc welder
Demonstrating safe procedures
Measuring for welding
Welding butt joints
Welding flat T-joints
Welding lap joints

Body and Frame Alignment

Checking alignment
Aligning body and frame

Metal Straightening and Preparation

Bumping and dinging techniques
Correcting metal damage with a hammer and dolly block
Removing paint, smoothing metal and finding low spots
Removing a minor dent using a long pick hammer, all purpose dolly and adjustable file
Removing a minor dent or gouge using a drill motor, pull rods and body file
Filling 1/8" holes or smaller with soldering iron and solder
Repairing a hole or rust damage using a fiberglass patch
Removing rusted out area of a panel and replacing it with a new sheet metal patch
Repairing damaged area using lead to fill imperfections
Mixing and applying plastic body filler
Repairing a tear in a panel
Removing partial panel and welding in a patch
Repairing broken fiberglass with fiberglass repair kit

Metal Preparation

Locating paint code and determining how much and what type of material to order for the repair
Washing and cleaning vehicle; removing old finish and treating bare metal for a good bond
Masking a vehicle for spot, panel or overall painting

Paint Application

Adjusting gun and air pressure to spray enamel, sealer and primer surfacer and apply to bare metal
Featheredging all broken areas of finish on a vehicle and applying sealer
Applying primer surfacer and hand-sanding a vehicle wet or dry
Spot painting a solid color
Painting a panel with a solid color
Painting a vehicle with alkyd and acrylic enamel
Painting a panel and spot painting a panel with metallic colors
Compounding and polishing by hand and with a buffer
Cleaning and maintaining paint spray guns

Estimation

Estimating parts replacement
Estimating labor

CERTIFICATE OF COMPETENCY

This is to Certify that

____

of

____

has successfully mastered the competencies required to perform the job of Auto Body Repairer.

____

____

The student named on this certificate has demonstrated mastery of the following tasks required to perform the job of Auto Body Repairer.

AUTO BODY REPAIRER
(D.O.T. 807.381-010)

Body and Frame Component Replacement

Demonstrating an understanding of auto body structures
Naming the parts of a vehicle and describing how they are constructed and formed together
Removing, replacing and aligning doors
Removing and replacing grills and gravel deflectors
Removing and replacing a door lock assembly
Removing and replacing moldings
Removing and replacing weatherstrip
Removing and replacing interior trim
Removing and replacing door trim panel
Removing, replacing and adjusting headlamps
Removing and replacing a headliner
Removing and replacing standard and energy-absorbing front bumpers
Removing, replacing and aligning hood
Removing and replacing front fenders and wheel housing units
Removing and replacing fuel tanks
Removing and replacing quarter panels and extension
Removing and replacing bolt-in radiator supports
Removing and replacing door skin
Removing a complete front end assembly
Removing and replacing windows with adhesive sealant
Removing and replacing a windshield with rubber channels
Removing and replacing a door glass regulator
Removing and installing glass
Removing and replacing power window motors and locks

Acetylene Welding Processes

Identifying welding processes
Identifying welding gases
Identifying gas welding equipment
Demonstrating safe handling of equipment and gases
Setting up equipment and lighting torch
Forming and carrying a puddle (no filler rod)
Welding outside corner joints (no filler rod)
Forming beads with filler rod
Cutting metal with the torch
Cutting and forming holes
Welding butt joints
Welding lap joints
Forming beads with brass rods
Brazing lap joints

Electric Arc Welding Processes

Setting up the arc welder
Demonstrating safe procedures
Measuring for welding
Welding butt joints
Welding flat T-joints
Welding lap joints

Body and Frame Alignment

Checking alignment
Aligning body and frame

Metal Straightening and Preparation
Bumping and dinging techniques
Correcting metal damage with a hammer and dolly block
Removing paint, smoothing metal and finding low spots
Removing a minor dent using a long pick hammer, all purpose dolly and adjustable file
Removing a minor dent or gouge using a drill motor, pull rods and body file
Filling 1/8" holes or smaller with soldering iron and solder
Repairing a hole or rust damage using a fiberglass patch
Removing rusted out area of a panel and replacing it with a new sheet metal patch
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Metal Preparation

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Applying primer surfacer and hand-sanding a vehicle wet or dry
Spot painting a solid color
Painting a panel with a solid color
Painting a vehicle with alkyd and acrylic enamel
Painting a panel and spot painting a panel with metallic colors
Compounding and polishing by hand and with a buffer
Cleaning and maintaining paint spray guns

Estimation

Estimating parts replacement
Estimating labor

SECTION VIII

SPECIAL NEEDS STUDENT

WORKING WITH SPECIAL NEEDS STUDENTS

Introduction

Special needs students are those who are designated as handicapped and/or disadvantaged. The 1976 vocational education amendment defines handicapped individuals as:

> Persons who are mentally retarded, hard of hearing, deaf, speech impaired, visually handicapped, seriously emotionally disturbed, orthopedically impaired, health impaired, or persons with other specific disabilities, who by reason thereof require special education and related services and who cannot succeed in the regular vocational education programs.

In Title II of the 1976 education amendments disadvantaged persons are defined as:

> Persons (other than handicapped persons) who have academic or economic disadvantages and who require special services, assistance or programs in order to enable them to succeed in vocational education programs.

Federal legislation requires that these special people be given an opportunity to function in a regular classroom. This section provides information on how special needs students are identified and how they can be mainstreamed into regular educational environments.

Figure One presents a model depicting various activities of the process in identifying and mainstreaming special needs students. These activities are conducted at three levels: the system level, the school level and the classroom level. All three levels must work together if implementation of the process is to be effective.

Identification Of The Special Needs Student

Through a variety of pre-testing procedures, special needs students are identified and their potentials are evaluated at the

SPECIAL NEEDS MAINSTREAMING MODEL

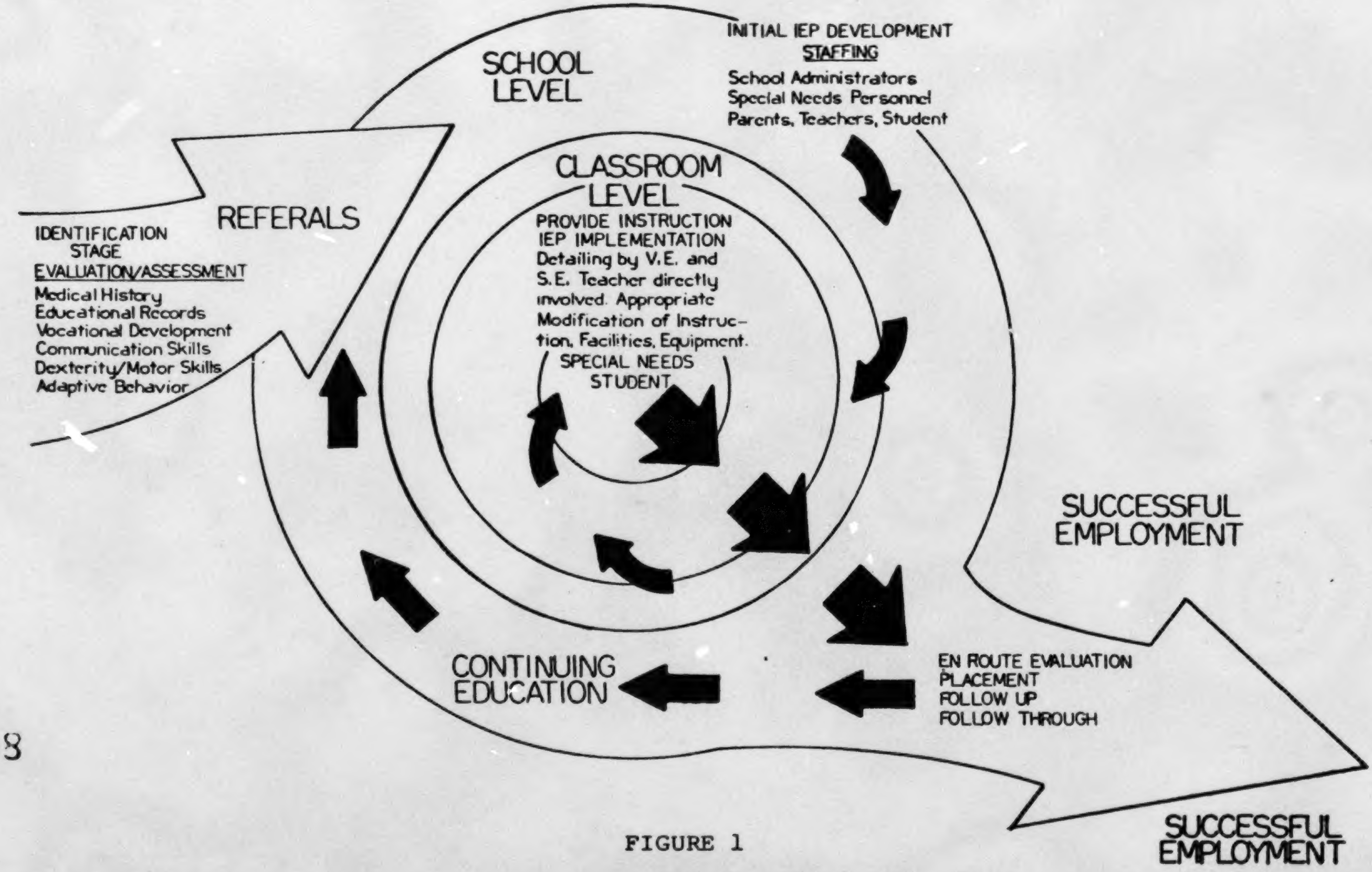

SCHOOL LEVEL
INITIAL IEP DEVELOPMENT
STAFFING
School Administrators
Special Needs Personnel
Parents, Teachers, Student
REFERALS
IDENTIFICATION STAGE
EVALUATION/ASSESSMENT
Medical History
Educational Records
Vocational Development
Communication Skills
Dexterity/Motor Skills
Adaptive Behavior
CLASSROOM LEVEL
PROVIDE INSTRUCTION
IEP IMPLEMENTATION
Detailing by V.E. and S.E. Teacher directly involved. Appropriate Modification of Instruction, Facilities, Equipment.
SPECIAL NEEDS STUDENT
SUCCESSFUL EMPLOYMENT
CONTINUING EDUCATION
EN ROUTE EVALUATION
PLACEMENT
FOLLOW UP
FOLLOW THROUGH
SUCCESSFUL EMPLOYMENT

FIGURE 1

system level. This evaluation process consists of collecting and assessing the following data for each student:

- Medical History
- Educational Records
- Vocational Development
- Communication Skills
- Dexterity/Motor Skills
- Adaptive Behavior

When this procedure has been completed, the system personnel refers the student to the appropriate school level personnel.

Development of the Plan

At the school level, an Individual Education Plan (IEP) is developed for each special needs student. An IEP is a written plan which describes the educational objectives, both long and short term, and the support services for a special needs student. The plan is developed by the school administration, special education personnel, teacher(s) directly involved with the student and the parent(s). In some cases, the student may help with the development.

Implementing the I.E.P.

The actual implementing of the I.E.P. begins at the classroom level. The purpose of the teacher dealing with the special needs student is to help the student set realistic goals, identify the barriers which make it difficult for the student to learn and adapt the curriculum and/or facilities with reference to the I.E.P. so the student can learn while overcoming personal barriers.

Special needs students have problems which hinder their learning. Therefore, a teacher's job becomes more complicated than when teaching "regular" students. Handicapped students may have a variety of problems - mental, physical and/or emotional.

Academically disadvantaged students may exhibit language deficiencies, reading and writing deficiencies, computational deficiencies and general educational deficiencies. Economically disadvantaged students may possess an inability to concentrate because their primary needs - food, shelter, clothing - are not adequately met due to lack of money.

By considering these problems, teachers can modify existing programs to accommodate the needs of special needs learners. Some suggestions which may prove beneficial in modifying an existing curriculum are listed below:

-Prepare instructional materials in greater detail and assign work in shorter units.

-Provide more frequent evaluation of student's progress and provide opportunities for remedial work.

-Be aware of the student's limited vocabulary.

-Be aware of the student's inability to understand abstractions and generalizations and prepare materials accordingly.

-Keep the student aware of his or her progress and make the student feel he or she can succeed.

-Use real teaching aids, live work and practical experiences whenever possible.

-Choose reading material which is at the student's level, interest and experience.

-Use constructive criticism only.

-Use peer instruction whenever possible.

-Allow the student to advance at his or her own pace.

-Use the part-to-whole learning concept in adapting materials.

Materials Which Can Be Used to Teach Disadvantaged

In Georgia an effective set of materials has been developed to be used with a program to help disadvantaged students adjust to life and work situations. This program is called CVAE or Coordinated Vocational Academic Education. The CVAE program is organized with a coordinator who is responsible for the type of instruction the students receive, and a team of teachers assigned to the coordinator who work cooperatively to help the disadvantaged students learn to enjoy school and become more successful students. CVAE materials include visuals in the form of synchronized slide/ tape presentations. These units are designed to help the disadvantaged student become more successful in school, learn good work habits, become an aware consumer, and develop a better self-image and appearance. (Although designed especially for disadvantaged students, CVAE may also be used in regular classroom situations). The vocational education teacher should work with the CVAE coordinator to design a program of study for the disadvantaged students in areas in which the student needs help.

In some cases, facilities, must be modified for handicapped special needs students. In general, as long as the classroom/ shop meets federal guidelines for barrier free design, extensive facility changes need not be made. For visually impaired students, for example, let the student locate in the classroom where he or she can see best even to the point of moving the desk or work station as a portable unit. In the case of orthopedically handicapped, some changes may have to be made to shop machinery to allow the student to use it. This may involve more convenient controls or special seating where the student would normally stand. In making these changes, special education expertise would be helpful.

Evaluation

Evaluation of the student's program should consist of:

- En-route evaluation (formative) to monitor the student's progress through the program.
- Summative evaluation upon completion of the program to determine job readiness.
- Follow-up after placement to determine if the student is successful on the job.
- Follow-through activities designed to identify any further training needed, which is indicated by the follow-up procedure.

Working with special needs students is much more demanding of the system, the school and the classroom teacher. However, with their patience and understanding, special needs students can not only succeed, but in many cases excell.

RESOURCES

To aid the teacher in modifying materials for special needs categories, the following references are listed by category. These are suggested references only as a world of materials exist on this subject.

Mentally Retarded

A Curriculum Guide for Teachers of Educable Mentally Retarded. Danville, Ill.: The Interstate Printers and Publishing Co., Inc.

High, Elizabeth C., and Moyers, Kathy L. Training Manual: Developing Pre-Vocational/Vocational Skills in Developmentally Disabled Persons. Washington, D.C.: Job Development Laboratory, George Washington University, 1976.

Kolstoe, Oliver P. Teaching Educable Mentally Retarded Children. Holt, Rinehart and Winston, 1976.

Mulligan, Robert E.; Gavin, Donald and Conaley, James. Comprehensive Career Education Curriculum Guide for the Trainable. New Brunswick, N.J.: Rutgers Vocational-Technical Curriculum Laboratory, 1977.

Introduction to Vocations for Educable Mentally Retarded. New Jersey: New Jersey Department of Education.

State of Ohio Curriculum Guide for Moderately Retarded Learners. Columbus, Ohio: Ohio Department of Education, 1977.

Tucker, Mark M. Learning through Curriculum Modification; A Blueprint to Teaching the Mentally Retarded. Johnstown, PA.: Mafex Associates, Inc., 1976.

Watson, Marjorie. Mainstreaming the Educable Mentally Retarded. Washington, D.C., NEA, 1975.

Hearing Impaired

Alvin, Howard P. The Evolution of an Evaluation Design for Evaluating Secondary Programs for the Deaf in Vocational Occupational-Technical Education (VOTE) Programs. ERIC - ED 123-241.

Guidelines: Educational Planning for the Hearing Handicapped. North Carolina Public Schools. Division for Exceptional Children, North Carolina Department of Public Instruction, Raleigh, N.C., 1977.

Munson, Harold L.; Eglston, Judy Cobb and Phillips, Gordon B. Career Education for Deaf Students: An Inservice Leader's Guide. University of Rochester, College of Education, Center for the Study of Helping Services, Rochester, N.Y. 1975.

Nix, Gary W. Mainstreaming Education for Hearing Impaired Children and Youth. Grune and Stratton, 1976.

Orthopedically and Other Health

A Model Plan for a Cooperative Vocational Rehabilitation Program. Office of Human Development, Rehabilitation Services and Administration. Department of Health, Education and Welfare, Washington, D.C.

Mallix, Kalisanker and Mueller, Jim. Vocational Aids and Enhanced Productivity of the Severely Disabled. The George Washington University Rehabilitation Research and Training Center, Washington, D.C. 1975.

McCarthy, Henry and Smart, Landon. Recommendations for Enhancing Employment Prospects of Handicapped Individuals. Comps. Human Resources Center, Albertson, L. I., 1978.

Duncan, John, et al. Environmental Modifications for the Visually Impaired: A Handbook. Visual Impairment and Blindness, December 1977, p. 442-455.

Disadvantaged

Guidelines for Methods and Techniques of Teaching Disadvantaged Students. Division of Vocational Education, Virginia Polytechnic Institute and State University, Blackburg, VA.

A Handbook for Developing Programs and Services for Disadvantaged Students. Department of Vocational Education Studies, College of Education, Southern Illinois, University of Carbondale, Carbondale, Ill. 62901

By Program

Adaption of Home Economics Curricula for Special Needs. North Dakota Research Coordination Unit, State Board for Vocational Education, State Office Building, Bismarck, ND.

Auto Body: An Adaptive and Developmental Program for Special Needs Students. Vocational-Technical Curriculum Laboratory, Rutgers - The State University, New Brunswick, N.J. 1976.

Floriculture Board of Cooperative Educational Services of Nassaw County, Division of Occupational Education, Division of Special Education, Westburg, NY 1975.

Grubb, Francine. Basic Business - A Teacher's Guide to an Employment Orientation Course for Special Needs Students. Vocational Technical Curriculum Laboratory, Rutgers - The State University, New Brunswick, N.J. 1976.

Home Economics and the Exceptional Student: A Handbook for Home Economics Teachers Working with Mentally Retarded Students. Vocational-Technical Curriculum Laboratory, Rutgers - The State University, New Brunswick, N.J. 1976.

Troutman, Carol M. Introduction to Office Occupations. Vocational-Technical Curriculum Laboratory, Rutgers - The State University, New Brunswick, N.J. 1974.

Working with the Handicapped in the Vocational Home Economics Classroom. Division of Vocational Education, State of Ohio, Columbus, Ohio.

Coordinated Vocational Education and Training (C.V.E.T.) manuals for disadvantaged, available from: Oklahoma State Department of Vocational and Technical Education, Curriculum and Instructional Materials Center, 1515 West Sixth Avenue, Stillwater, Oklahoma 74074.

-CVET Construction 3100219 Teacher's Guide
3100209 Student

-CVET General Mechanics 3100239 Teacher's Guide
3100229 Student

General Special Needs

A Handbook for Modifying Vocational Curricula for Handicapped Students. Wisconsin Vocational Studies Center, University of Wisconsin, Madison, May 1980.

Bottoms, J.E. and Scott, C.P. Supportive services for special student groups. In J.E. Wall (ed.), Vocational Education for Special Groups. Sixth Yearbook, Washington, D.C.: American Vocational Association, 1976.

Gill, Douglas H. and Scott, C. Paul. A practical model for mainstreaming handicapped learners in vocational education. The Journal for Vocational Special Needs Education, Vol. 1, No. 3, April, 1979, pp. 3-7.

Gugerty, J., et al. Tools, Equipment and Machinery Adapted for the Vocational Educator and Employment of the Handicapped. Project #498749006, Wisconsin Vocational Studies Center, Madison, Wisconsin, January 1981.

Hull, Marc E., Berry, Owen J. and Clark, Donald L. Procedures for Teaching Vocational Concepts to Students with Special Needs. Texas A & M University, Final Report Project 62350274, June 1976.

The Related Vocational Instruction Program. Georgia's Approach to Vocational Education for the Handicapped at the Secondary level, Douglas H. Gill, Project Coordinator, Vocational Programs for the Handicapped, Georgia Southern College, Statesboro, Georgia.

Vocational Educational Resource Materials, A Bibliography of Materials for Handicapped and Special Education. Third edition, 1978. Wisconsin Vocational Studies Center, University of Wisconsin - Madison.

SECTION IX

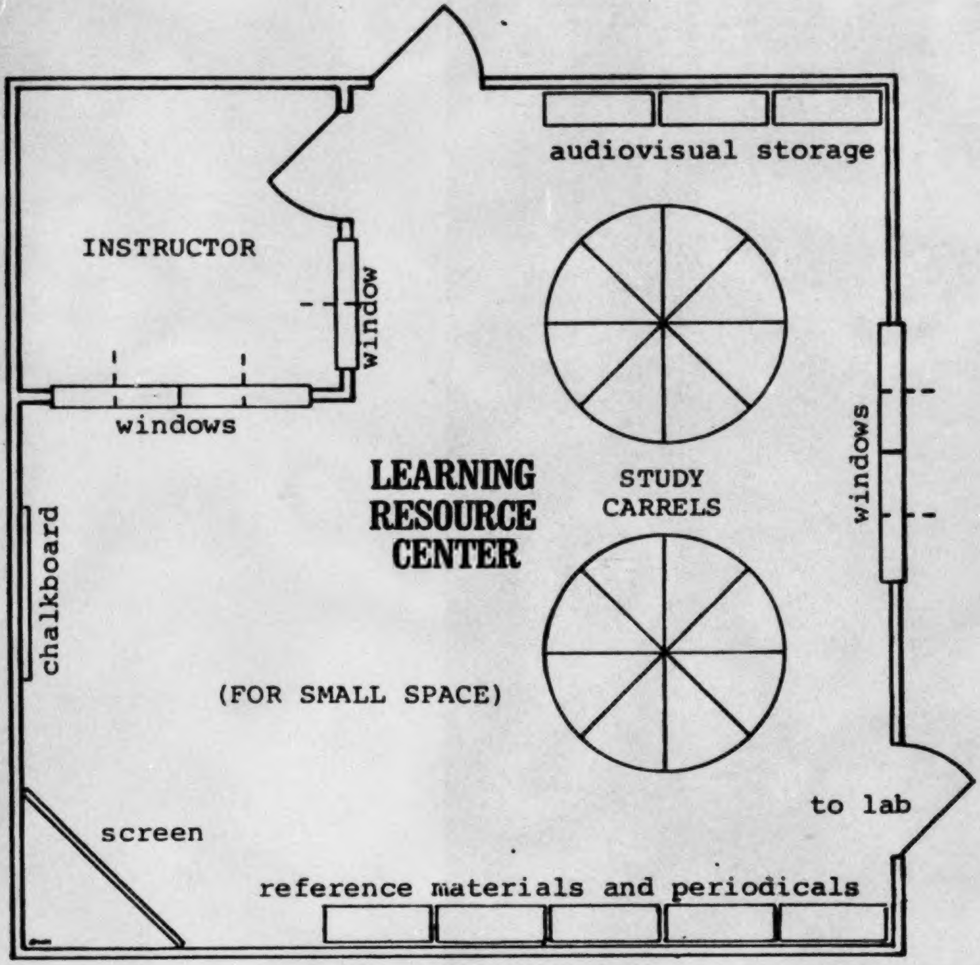
FACILITY LAYOUT

Facility Layout

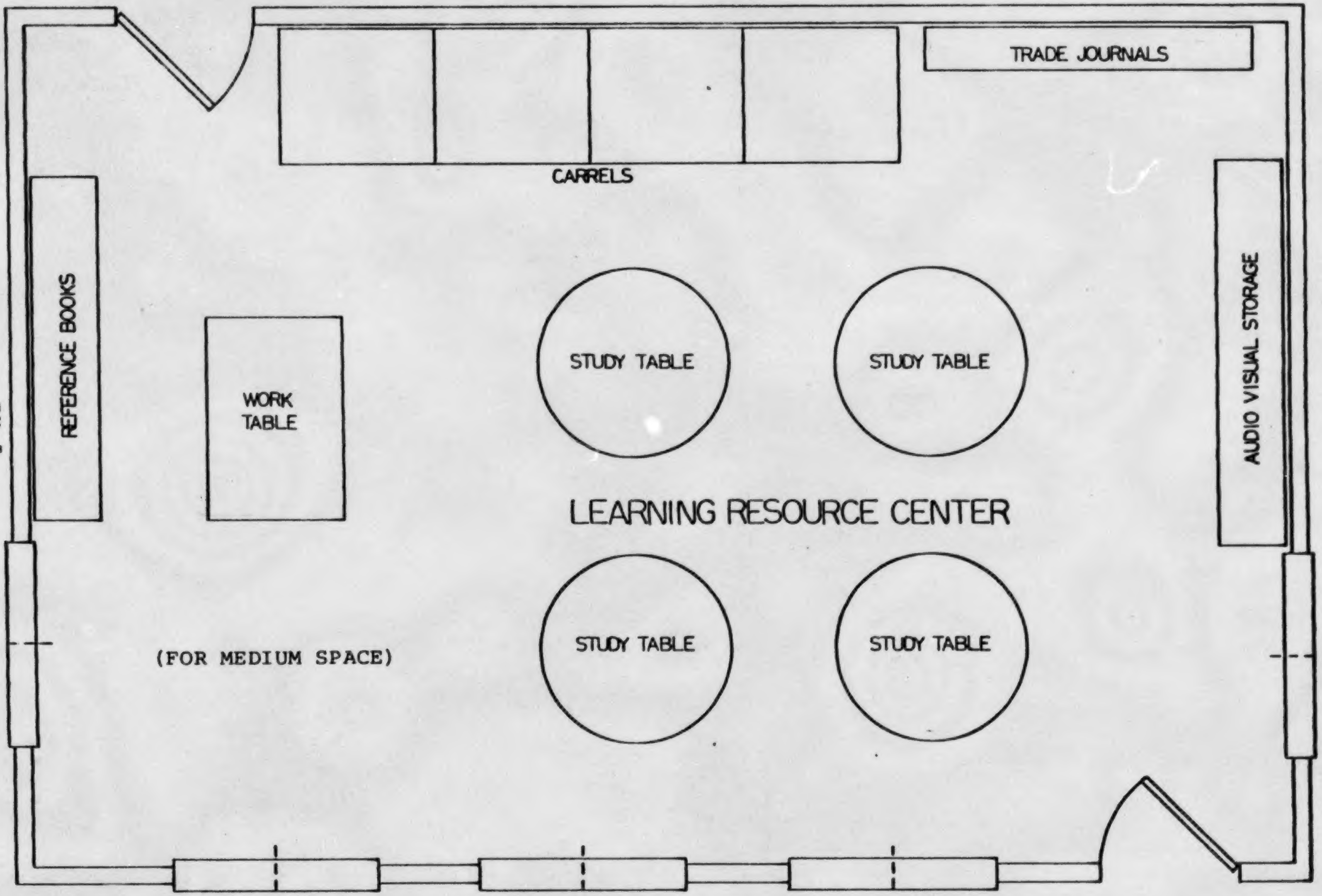
The facility layouts on the following pages are presented to aid in arranging the classroom and laboratory for efficient instruction. The three resource center arrangements represent small, medium and large centers. Ultimately, the instructor must determine an arrangement that best fits the needs of the students and the instructional method being used.

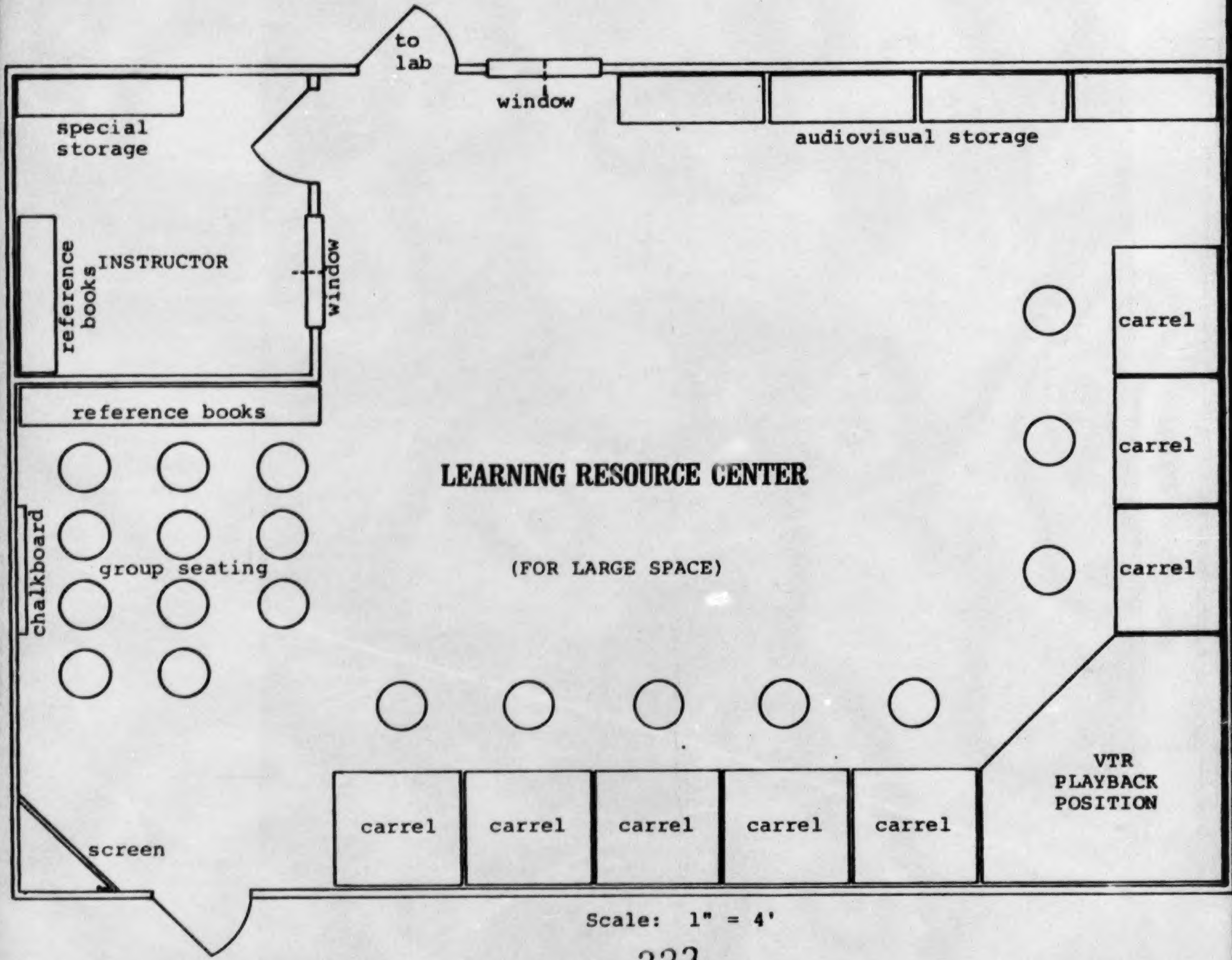
The laboratory facility layout is one recommended by the teachers who helped develop the Auto Body program materials. This facility is easily adaptable to a variety of arrangements that will best fit local needs.

These layouts may be especially useful in those schools where classroom renovation or construction is being planned.


audiovisual storage
INSTRUCTOR
window
windows
LEARNING RESOURCE CENTER
STUDY CARRELS
windows
chalkboard
(FOR SMALL SPACE)
to lab
screen
reference materials and periodicals

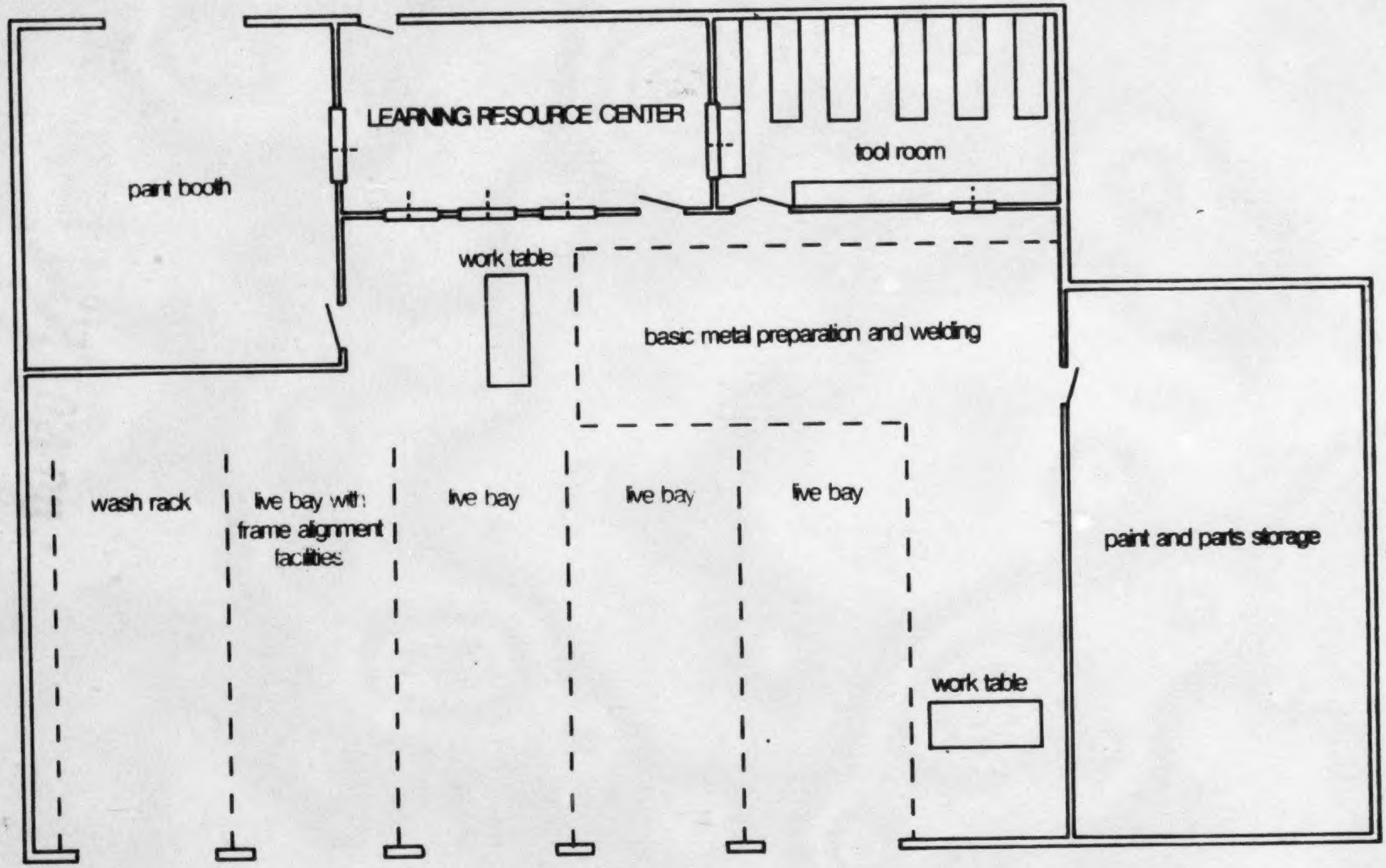
Scale: 1" = 4'


TRADE JOURNALS
CARRELS
REFERENCE BOOKS
WORK TABLE
STUDY TABLE
STUDY TABLE
LEARNING RESOURCE CENTER
AUDIO VISUAL STORAGE
STUDY TABLE
STUDY TABLE
(FOR MEDIUM SPACE)


to lab
window
special storage
audiovisual storage
reference books
INSTRUCTOR
window
reference books
LEARNING RESOURCE CENTER
(FOR LARGE SPACE)
chalkboard
group seating
carrel
carrel
carrel
carrel
carrel
carrel
carrel
carrel
VTR PLAYBACK POSITION
screen

Scale: 1" = 4'

AUTO BODY LABORATORY


LEARNING RESOURCE CENTER
tool room
paint booth
work table
basic metal preparation and welding
wash rack
live bay with frame alignment facilities
live bay
live bay
live bay
paint and parts storage
work table

SECTION X

DEFINITION OF TERMS

DEFINITION OF TERMS

1. AV's-Audiovisuals - May refer to any picture and/or sound media. (ie. slides, tapes, filmstrips, 16 mm films, etc.)

2. Checkpoint - A student-instructor interface point wherein the instructor may give the student a test, perform a demonstration, or simply provide the student with additional needed information or instructions. Also a checkpoint may be used for motivational purposes.

3. Competency - The ability (knowledge, skills and attitudes) to perform all of a group or cluster of related tasks required to complete a designated activity according to occupational standards. In the educational setting the statement of a competency includes expected student outcomes in terms of knowledge, skills, and attitudes required to complete a designated activity as defined by incumbent workers according to the standards of the work place.

4. Course - A grouping of tasks and competencies which have a common knowledge base or are within a given domain.

5. Criterion-Referenced Measure - An exercise based upon a performance objective, the accomplishment of which measures attainment of that objective.

6. Criterion-Referenced Test - A test designed to measure student competencies based on job or industrial standards.

7. Curriculum Guide - A document containing the objectives, content, organization, and structure of an instructional program. It is designed for use by administrators, instructional supervisors and teachers.

8. D.O.T. - Abbreviation for Dictionary of Occupational Titles. Document provides nine digit codes identifying each occupation.

9. Duty - One of the distinct major activities involved in the work performed, comprising related tasks.

10. Exit Point - A predetermined point within an instructional program in which a student may exit with the essential competencies for a specific job. Usually defined in terms of D.O.T. codes and/or O.E. codes.

11. "Hands-On" - Statement implying the student is physically involved in a learning activity.

12. Individualized Instruction (I.I.) - A system of instruction allowing for a student to progress at their fastest rate.

13. Job - A specific area of specialization within an occupational field consisting of several closely related duties for which a person would expect to receive remuneration. Should be identified by DOT code.

14. Job Sheet - (Or Operations Sheet) - A project of a performance nature. Generally performed by the student in a lab or shop type environment or in a specialized work area.

15. Live Work - Generally refers to items brought into the course area for repair or adjustment. Examples of live work might be automobiles, radios and TV's, air-conditioners, etc. Another form of live work would be patrons visiting the cosmetology department to receive permanents or other services.

16. Master Copies - Original copies of slides, tapes or written materials set aside for the purpose of duplication.

17. Occupational Cluster - A group of occupations sharing a common core of competencies. Georgia's comprehensive high school vocational program is organized around this concept.

18. Occupational Inventory - A listing of tasks to be performed in a particular occupational area, grouped under duty classifications.

19. O.E. - Refers to the U. S. Office of Education. O.E. codes are a classification system (taxonomy) for occupational education programs.

20. Open Entry - Term meaning that a student may enter the program at any time and does not have to wait for quarter or semester breaks.

21. Open Exit - Term meaning that a student may leave a program any time he/she completes their occupational objective.

22. Performance Guide - A series of steps, arranged in a sequence ordinarily followed, which when completed may result in the performance of a task. Also called "teaching steps."

23. Performance Objective - A statement in precise, measurable terms of a particular behavior to be exhibited by a learner under specified conditions. It possesses each of the elements or characteristics specified below:

    a. Condition - The testing situation confronting the learner is clearly specified. This includes equipment provided or withheld, environmental constraints such as temperature, space, etc.

   b. Performance - The specific behavior expected of the learner is stated.

   c. Standard - The degree of acceptable performance is specified.

24. Performance Test - A test entailing not only the ability to answer questions, but measuring the students' ability to operate, manipulate, or perform a given task as well.

25. Program - An organized sequence of courses leading to an occupational objective. A program may contain one or more student exit points as defined by D.O.T. codes.

26. Program Objective - The outcome of a prescribed program of instruction. Usually expressed in terms of the occupation or job for which training is designed. D.O.T. codes are frequently used to identify program objectives or student exit points.

27. Self-Paced - Refers to a student moving through the prescribed training program at the fastest pace at which the student can, meaningfully learn.

28. Sequencing - Putting any set or series of learning activities or tasks into proper order or sequence. Normally arranged from the simple to complex within groupings or blocks.

29. Software - Written or printed materials, slides, filmstrips, tapes, etc.

30. Student Manual - A document designed for use by students in a specific instructional program. It contains unit sheets, references, operational procedures or job sheets, etc.

31. Task - The smallest division of work in which a measurable output occurs. A logical and necessary step in the performance of a duty.

32. Task List - A listing of tasks performed by incumbent workers within a domain of interest. An example is a listing of all tasks performed by an automotive mechanic or by a worker in ornamental horticulture.

33. Unit - One "module" training materials; generally covering one learning task and programmed on one Unit Sheet. May cover more than one lesson.

34. Unit Guide - A curriculum guide sheet that lists a task and objective with the instructional activities, instructional materials, evaluation and approximate time required for a student to successfully complete the task.

35. V-TECS Catalog - A comprehensive collection of performance objectives, performance guides, criterion-referenced measures, and related data, organized by a job structure or career ladder within a domain of interest.

Federal law prohibits discrimination on the basis of race, color or national origin (Title VI of the Civil Rights Act of 1964); sex (Title IX of the Educational Amendments of 1972 and Title II of the Vocational Education Amendments of 1976); or handicap (Section 504 of the Rehabilitation Act of 1973) in educational programs or activities receiving federal financial assistance.

Employees, students and the general public are hereby notified that the Georgia Department of Education does not discriminate in any educational programs or activities or in employment policies.

The following individuals have been designated as the employees responsible for coordinating the department's effort to implement this nondiscriminatory policy.

Title II - Loydia Webber, Vocational Equity Coordinator
Title VI - Peyton Williams Jr., Associate Superintendent
of State Schools and Special Services
Title IX - Evelyn Rowe and Myra Tolbert, Coordinators
Section 504 - Jane Lee, Coordinator of Special Education

Inquiries concerning the application of Title II, Title VI, Title IX or Section 504 to the policies and practices of the department may be addressed to the persons listed above at the Georgia Department of Education, State Office Building, Atlanta 30334; to the Regional Office for Civil Rights, Atlanta 30323; or to the Director, Office for Civil Rights, Education Department, Washington, D.C. 20201.